THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."

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TRADE DISPUTES

LORD BIRKENHEAD, speaking recently at the annual dinner of the Newspaper Society, was reported as saying that he was informed that since the Armistice there had been 5,000 quite considerable strikes in this country, and he observed that there had spread a feeling of bitterness and disharmony between employers and employed which was wholly alien to the spirit of England. These observations demand consideration, for according to the official returns in the years 1920–1925, there have been 5,093 strikes involving directly 5,873,000 workpeople and a loss of 165,905,000 working days, and yet we cannot doubt that beneath the surface there is a real desire for peace, and the prosperity which alone can ensue if industrial peace is secured, in the minds of the majority of the employers, if not the whole, and of the great bulk of our working population. The strain which followed the intense exertions necessitated by the war can account for a certain sense of irritation, especially when the aftermath of the war has proved so very disappointing; but it can hardly account for actions which, so far as our prosperity as a commercial nation is concerned, amount to acts of *felo de se*.

For the six years immediately preceding the war—that is to say, in the years 1908–13 inclusive—the figures as to trade disputes averaged 764 strikes, affecting 702,334 workpeople, and the loss in working days averaged 14,371,375. For the six years after the war, 1920–1925, the figures averaged over that period are 849 strikes, 978,833 workpeople involved, and 27,650,833 working days lost. It will be seen it is not so much the number ot strikes that is serious, but the working people affected and the time lost. The time lost since the war has practically been doubled and the number of workpeople affected has been vastly increased. The loss of working time is, however, the most important feature in the above figures, for it points to increased difficulty in terminating disputes and the failure to apply successfully methods of conciliation. The deductions from statistics are never conclusive, but we have extracted the figures relating to disputes for three different periods selected with reference to the changes in the law relating to trade unions with a view to seeing whether that legislation appears to have any connection with labour unrest.

The first period we have taken is the six years immediately preceding the introduction of the Trade Disputes Act, 1906. That Act extended the powers of trade unions and indirectly permitted what is known as the "sympathetic strike." The second period is that immediately preceding the Trade Union Act, 1913, which altered the "statutory objects" of trade unions defined by the Trade Union Acts, 1871 to 1906, and permitted the unions to engage in political objects as defined in the Act of 1913. The third period is that following the restoration of normal conditions after the war up to the end of last year. These six-year periods give the following results:—In the years 1901–1906 inclusive the number of strikes averaged 445, the number of workpeople directly affected averaged 158,593, and the loss in working days averaged 2,623,905. The next period of six years, 1907–1912 inclusive, gives the following averages:—Strikes 621, workpeople affected 490,693, working days lost 11,729,956. The last period, 1920–1925, gives, as averaged, strikes 849, number of workpeople affected 978,833, working days lost 27,650,800. Thus it will be seen that each change in the law relating to trade unions has been followed by an increase in trade disputes, though whether that is cause and effect we do not pretend to say.

We tabulate the figures given for the three periods of six years for convenience of reference:—

	Strikes.	Workpeople.	Working Days.
1901–6 ..	445	.. 158,593	.. 2,823,905
1907–12 ..	621	.. 614,040	.. 12,816,570
1920–25 ..	849	.. 978,833	.. 27,650,833

Thus it will be seen that comparing the first period before the new legislation with the last period after that legislation, the number of strikes has all but doubled; the number of workpeople affected is six times as great, whilst the loss in working days is nearly eleven times greater.

We have left the war period out of the above table because of course conditions were then not normal, although the Trade Union Act, 1913, was in force from March 7 in that year; but as we desire the figures to speak for themselves, we here give the figures for the period omitted 1913-1919:—

For the actual war years, 1914-1919, the figures average: Strikes, 939; Workpeople affected, 952,333; Working Days lost, 10,409, 000. But if the six year period taken is 1913-1918, the yearly average is as follows: Strikes, 954; Workpeople affected, 638,833; Working Days lost, 6,591,833—for the Armistice year 1919 was marked by strikes in the coal trade, engineering, and ship-building, the railways, and other industries—1,413 strikes affecting 2,570,000 workpeople and involving the loss of 34,483,000 working days.

We have taken the above three periods with the express object of raising the question whether the Trade Union Act of 1913, which for the first time allowed the trade unions to become political organisations, has made for peace, or whether it has not tended to arouse that feeling of bitterness and disharmony in industrial matters which Lord Birkenhead characterised as alien to the spirit of England. The objects for which, until 1913, trade unions were formed, as is stated in section 1 subsection (2) of the Trade Union Act, 1913, are those mentioned in section 16 of the Trade Union Act Amendment Act, 1876, "the regulation of the relations between workmen and masters or between workmen and workmen or between masters and masters or the imposing of restrictive conditions on the conduct of any trade or business and also the provision of benefits to members." The Act of 1913 was passed to get over the decision of the House of Lords in Amalgamated Society of Railway Servants *v.* Osborne (1910, A.C. 87), in which it was held that a levy on trade union members for the purpose of securing parliamentary representation was *ultra vires* and illegal, and in that case some of the members of the tribunal pointed out that such powers would create constitutional difficulties. The Act, subject to certain conditions as to the objects being approved by the unions by ballot, allows the unions to engage in "political objects," such as the maintenance of Parliamentary candidates or members, the holding of meetings, the distribution of literature, &c.

As we have shown, primarily the trade unions were industrial societies whose functions were confined to "statutory objects," and it may be a question whether it is consistent with those functions to unite "political objects," and indeed whether it is possible to obviate feelings of "bitterness and disharmony" when a political element enters into every dispute. If we always lived in the atmosphere of a general election those feelings would soon cease to be "alien to the spirit of England," but as Englishmen, with this one exception, we have always been wise enough to keep business questions and political questions in watertight compartments, only opening the bulkhead at election times.

The figures quoted above show that there has been a vast increase in the number of working days lost owing to disputes since the 1913 Act became operative, although the comparison is made with a period, 1907–1912, which was marked by two great strikes—the Engineering strike, 1908, and the Coal strike, 1912.

Business can sometimes be combined with pleasure, but we very much doubt the desirability of a combination which includes business and politics, and political issues especially complicate the settlement of what should be purely industrial questions. It would be a great advance could the political objects allowed trade unions under the 1913 Act be divorced from their "statutory objects," which, as we have shown above, were entirely industrial. In industry we have by legislation continued to sharpen the weapons of war, whilst allowing the instruments of peace—conciliation and arbitration—to rust.

NOTES

Another Thames Disfigurement.

NOT content with inflicting upon us the ugliest bridge in London, the Southern Railway have recently increased the unsightliness of Charing Cross bridge by adding to it a new monstrosity in the shape of a wooden shanty—presumably a signal-box. This structure, which occurs over the Embankment pier of the bridge, is not only objectionable in itself, but has the effect of completely spoiling the general view of this part of the river frontage. As one crosses either Waterloo or Westminster bridges from the southern side, the first thing that catches the eye is this wooden shanty, made all the more conspicuous by being painted a staring cream colour. Surely the railway company could have found some less prominent position for their signal box?

Folk Architecture.

MR. Kenneth Andrews appeal in *The Times* for the more sympathetic treatment of old cottages comes at an opportune moment. He cites an instance in Cornwall where an ancient cottage which might have been the show place of the town was swept away like any disgraceful hovel in a city slum, and he continues, "I cannot learn that any single reference was ever made to either its æsthetic value, its interest from an antiquarian point of view, or its admirable possibilities under sympathetic restoration." He suggests that since the native appears to be so apathetic, the district councils should be taught that buildings of this kind have a definite value, reducible to terms of money, in places which depend for prosperity upon the interest of the sightseer and tourist. While regretting such an outlook one can yet understand the attitude of the local council which is blind to æsthetic beauty, but it is almost incomprehensible, were it not so often demonstrated, that the same council should also fail to see what it is that attracts the visitor and the artist and brings money into the place.

Cottage Decoration.

HE further alleges that in Cornwall not only have many interesting villages been demolished or defaced by the ignorant, but that countless unsuspected beauties lie hidden beneath modern plaster and cement incongruously applied. His suggestion that the Royal Society of Arts should interest itself in cottage decoration and furnishing is one that we hope may come to something, because, although buildings are not permanently injured by tasteless decoration and fittings, yet the ignorance of æsthetics that these imply is also the cause of the vandalism and destructiveness that we deplore on all sides. Ignorance alone makes possible the attitude of country landlords who so far from taking any pride in ancient cottages when well kept seem positively ashamed of their properties and seek to disguise antiquity by the application of cement and pebble-dashed roughcast.

Waterloo Bridge

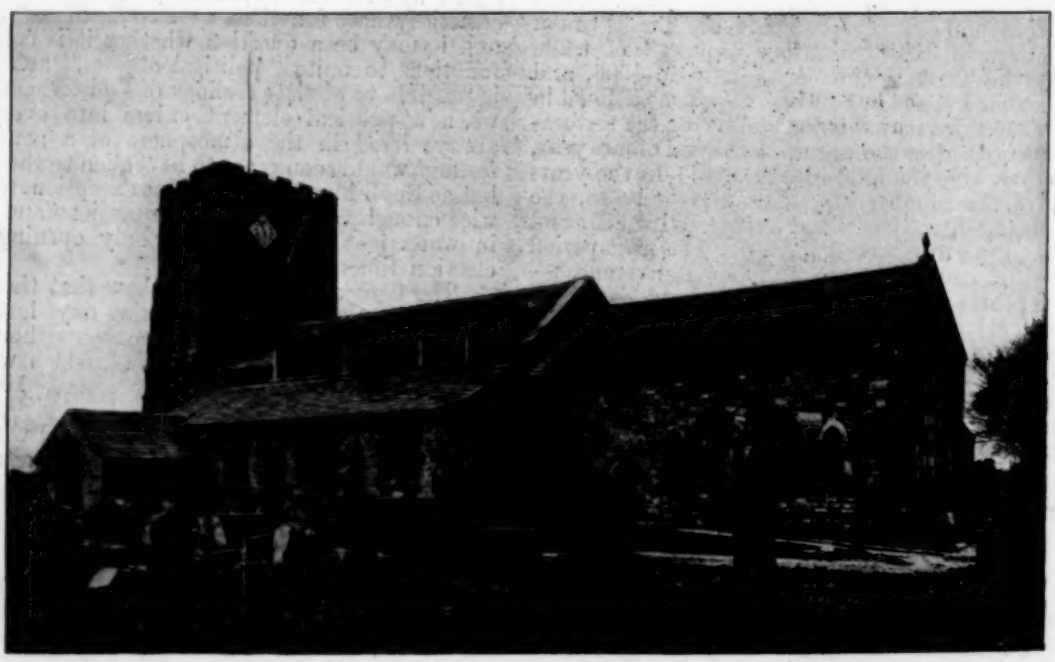
THE desirabil ty of an accurate and detailed survey of an ancient building as a basis for the formulation of measures of repair has been emphatically brought to the notice of the public in the case of Waterloo Bridge. After months of argument for and against the retention of the bridge, a sane and practical proposal to remove the heavy earth filling with which its arches are loaded was describ.d and illustrated, as we mentioned recently, in *The Times*. The old roadway was to be cut through and the earth dug out and replaced by a modern decking supported by struts from the extrados of the voussoirs. By these means a vast weight would be taken away and only a small one reinstated. The excellent idea has, however, been called into question by a correspondent, who declares that no earth filling exists in the bridge spandrils! If he is correct, the admirable scheme for lightening the brid e would appear to misfire in the present instance.

Tintern Abbey.

AS a device in scientific conservation, the proposal is still useful in cases where it applies. The great north arch of the tower at Tintern Abbey was treated in a similar way when, in 1918, it showed signs of movement through the bending of its supporting piers. The disintegrated rubble core above the crown of the arch was cut out and a deep trench formed in the wall top without disturbing the exposed ashlar facings of the tower. This removal of core lightened the load, but this would not have sufficed to arrest movement in the arch and its piers. A great beam of reinforced concrete, in the form of a cramp was, therefore, placed in the trench and the uppermost stones of the ruined tower were replaced in position on top of the beam. No movements have been reported since the insertion of the beam.

The Church Building Society.

ESTABLISHED in 1818, the Incorporated Church Building Society has, last year, completed a record of aiding the erection of nearly 3,000 new churches and improving over 7,000 others, during the hundred years of its existence, thus helping to secure more than two million additional seats, nearly all of which are for the free use of parishioners. The Society is now trustee for over £150,000 of funds. The report for the year 1925, which has just reached us, contains illustrations of some charming examples of old churches, such as Ribchester, Lydd, and Melverley. The two



The Parish Church of St. Wilfrid's, Ribchester, as restored.

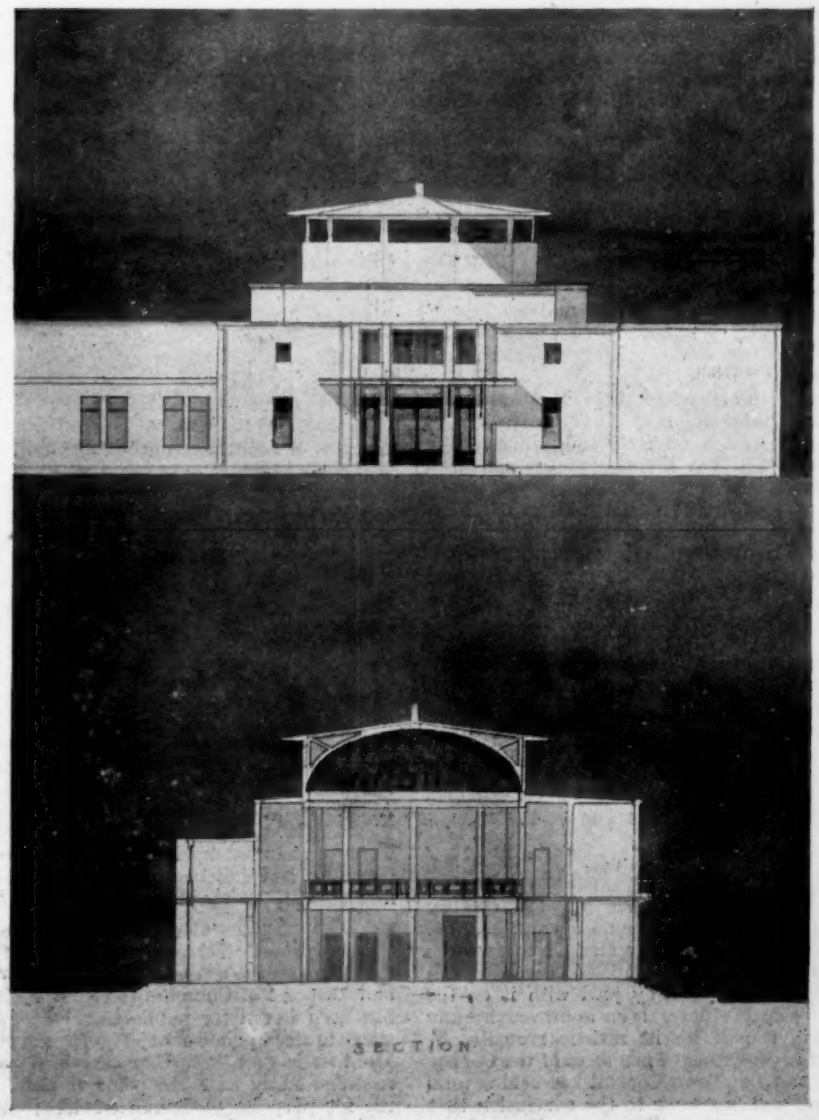
Old Cross at Monaster Boire, Co. Louth.

latter are amongst the most interesting in the whole country, Melverley being a unique example of timber construction. An odd feature of the latter church is the door of the porch, which is heeled into the beaming without hinges.

Ribchester Church. WE publish from the report of the Church Building Society an illustration of Ribchester Church, which is one of our notable old English buildings. In an admirable pamphlet by the rector, the Rev. S. Sidebotham, we find one of the most interesting records of old church architecture we have seen, for it also contains illustrations of the delightful little church of Stydd, about half a mile away from the parish church. The old mural painting, the Jacobean pulpit, the font, the ambry, the piscinas, the old glass and the musician's gallery are amongst the features of special interest in Ribchester Church, and anyone who comes within easy distance should not miss the chance of seeing it. The church was reopened after restoration last year, and we think few would regret spending sixpence on the rector's excellent little monograph.

Ecclesiastical and Other Art. A VISIT to the exhibition of British Decorative Art at the Whitechapel Art Gallery gives food for much reflection from the contrast presented between most of the examples shown, and it seems remarkable that such different approach should be the outcome of the same time. We should have to say Alas! for decorative art, if, for instance, most of the cartoons and designs for stained glass shown were all that is now left to represent it. There is better glass to be seen than is shown in the exhibition, for when there is taken away all that is derived in manner and habit from old treatment, there is very little left. Not that invention and fresh impulse and life is at all lacking elsewhere, and it is only necessary to note the names of some of the artists exhibiting to realise how much there is that is moving and healthy in the art of to-day. Primitive as, in a way, are some of the examples, they none the less hold all the vitality and promise that the "ecclesiastical" contributions lack. What is needed is greater opportunity and place for this younger work, which at present is neglected by the churches. Some of the window cartoons and designs shown appear like to some faded, written-over palimpsest, under which no trace or semblance of the original is any longer to be distinguished; the language quite undecipherable under this insipid covering, which has almost destroyed its meaning. This exhibition brings into prominence, from the contrast offered, the claims of the newer, frankly modern schools of work to be religious in their outlook than the kind of work that lays claims to it. If, for instance, Miss Adshead set her hand to designing a window, she would undoubtedly give us something evidently sincere, human, and expressive, for there is far more of really essential tradition in it, though so fresh and unconscious; and if this is not religious art in the real sense, we do not know what is, and what is said here of her work applies equally to other examples shown, touched with the same reality and human interest.

Durability of Portland Stone. AN interesting report upon the condition of King George I's statue, upon the stepped spire of St. George's Church, Bloomsbury, has been published by an evening contemporary. The statue, which is of Portland stone, has braved the weather, 200 ft. above the ground, ever since the completion of Hawksmoor's church early in the eighteenth century. Mr. William Larkins, a steeplejack, is reported to have said that "the face is almost obliterated, the feet have nearly vanished, and the fingers are almost as bad. Nevertheless, he has satisfied himself that the statue has now become case-hardened by a natural process, and is not likely to become any worse; so that by grouting the joints with liquid cement, it should be able to last for a long time.



Design for a Reinforced Concrete Pavilion by the Serpentine.
BY MISS JESSIE M. GREIG. (*See p.* 87.)

GENERAL NEWS

New Cinema, Liverpool.

A new cinema theatre is to be erected at Allerton-road, Liverpool.

Tudor Manor for Sale.

East Barsham Manor, near Walsingham, a fine example of Tudor architecture, is for sale.

Timber Houses, Plymouth.

Plymouth Housing Committee propose to erect two pairs of Norwegian houses at North Prospect, at a cost of £960 and £920 respectively.

Bury Infirmary Extensions.

The executors of the late Colonel John Barlow, of Bury, have placed £65,000 at the disposal of the Bury Infirmary for extensions.

Change of Address.

The address of the Institution of Structural Engineers is now 10, Upper Belgrave-street, S.W.1. Telephone: Victoria 3131–3132. Telegrams: Coninst, Sloane.

Rome Scholarship in Engraving.

The Faculty of Engraving of the British School at Rome have awarded the Rome Scholarship in Engraving for 1926 to Mr. Edward B. Hoyton, formerly a student of the Goldsmiths' College.

A New Corner House.

Marylebone Licensing Justices have approved plans for Messrs. Lyons' Corner House, to be erected on the site of the New Oxford Theatre, Oxford-street. The cost of erecting the new restaurant is estimated at about £250,000.

New Hospital Chapel.

By the end of August, the West London Hospital, Hammersmith, will possess its own Hospital Chapel, with a seating capacity of ninety, and available for patients, staff, and the public. Mr. A. Alban H. Scott is the architect.

New Partnership.

Mr. C. F. Marston, Assoc.M.Inst.C.E., L.R.I.B.A., of 36, Market-street, Tamworth, has taken into partnership his chief assistant, Mr. A. L. Linford. The business will be carried on at the above-mentioned address under the name of Marston & Linford.

Holyrood Palace Amenity Trust.

It is officially announced that the King has approved the creation of a Holyrood (Amenity) Trust for the purpose of conserving and taking charge of such articles of historic, national, and æsthetic interest as may be entrusted to it within the Palace of Holyrood House. The Duke of Atholl has been appointed chairman of the trust, and the other members are Mr. J. Wilson Paterson, M.V.O., M.B.E., A.R.I.B.A., F.S.A. (Scot.), Principal Architect of the Office of Works in Scotland, representing the Office of Works, and Mr. Alexander O. Curle, Director of the Scottish National Museum.

A Roman Culvert.

Continuing the excavations at Caerleon, Monmouthshire, Mr. Nash Williams's men have found at another point near the new entrance a culvert, which was struck at a depth of 12 ft. The design and masonry are both excellent. The culvert is 3 ft. deep by 18 in. wide. It is expected to yield considerable evidence of Roman subterranean work.

Clopton Bridge.

The question of dealing with the ever-increasing traffic over the famous fifteenth century Clopton Bridge is again under consideration. Stratfordians are naturally anxious to preserve the bridge, and the proposal to build an auxiliary bridge cheek by jowl with it on the up-river side has never been approved by any who have respect for its artistic beauties. A committee consisting of members of the County Council and the Town Council has held several meetings, and has come to the conclusion that a new bridge, practically on the lines of the tramway foot bridge, would be infinitely preferable.

Preserving Oxford's Amenities.

The authorities of the University of Oxford are recognising the necessity of giving assistance in order to preserve the beauties of the city and its surroundings. According to Colonel W. ffennell, of Wytham Abbey, Oxford, there is the possibility of a great fund being founded shortly for this purpose.

Architects' Estates.

Mr. Thomas Stopher, 79, of Chilcomb Chine, Winchester, architect and surveyor, (net personalty £1,119), £7,147.

Mr. Thomas Bostock Whinney, F.R.I.B.A., of Strathray-gardens, Hampstead, N.W., and of Old Jewry, E.C. (net personalty £63,393), £65,107.

Institution of Electrical Engineers.

The meeting of the Western Counties Branch at Bath, arranged for May 8 and abandoned on account of the strike, will take place on Saturday, July 17. There will be a reception by the Mayor of Bath at the Pump Room, at 3 p.m.

London Master Builders' Sports Association, L.M.B.A. League.

This Association wishes to extend its programme of fixtures for the coming football season and will welcome applications for membership from any interested firms. The League is open to all associated firms of the L.M.B.A. and interested Hon. Secretaries should get in touch with the Hon. Sec., Mr. F. W. Lamden, c.o. Messrs. Arthur Vigor, Ltd., 20, Knightsbridge, S.W.1.

Paying to See the Parthenon.

The Parthenon at Athens has been converted into a commercial enterprise by the Greek Government. An admission fee of £1 is now charged to all foreign visitors and tourists desiring to see it. The revenue so derived is used to pay the attendants and guards at the Temple, as well as to support the Greek National Museum of Antiquities.

Architects' Fees and Cornwall C.C.

The amount spent by the various committees of the Cornwall County Council upon architectural fees and work is at present a subject of investigation and discussion. A large committee, composed of representatives of each of the standing committees, has come to the conclusion that, in view of the fact that £37,825 has been expended during the past seven years in the way indicated, the time has arrived for consolidating the architectural work of the county.

Lincoln Cathedral.

The Dean of Lincoln (Dr. T. C. Fry), addressing the Lincoln Rotary Club recently, on the progress of Lincoln Cathedral repairs, said that the English money subscribed was £43,000 out of the £86,000, to which the original estimate of £50,000 was raised. American contributions were still coming in and now totalled £17,456. He hoped, he added, that 1928 would see the work finished. They had actually in hand or in sight another £12,000 to £13,000, which would be sufficient to carry on with till the spring. It would be disastrous if they had to dispense with any of the skilled men before the work was finished.

Buildwas Abbey.

The Office of Works (Ancient Monuments and Historic Buildings Department), which has accepted the guardianship of Buildwas Abbey, is now engaged in restoring that ruin The tangle of ivy is being cleared away, the worst of the masonry is being consolidated, and attention is being particularly directed to the fine work in the chapter house.

The City Churches.

The text of the petition on behalf of the City Corporation against the Union of Benefices and Disposal of Churches (Metropolis) Measure has been issued for publication. The petition states in all 14 points of objection to the measure. The first is that "the City churches cannot be regarded solely from the point of view of their use for purposes of church services; they are national memorials of the antiquity which renders the City a magnet of attraction to the world at large. Many of them are the product of the genius of Sir Christopher Wren, whose name alone should be their protection; several stand on sites which have been devoted to religious purposes since times which are prehistoric; the majority are the resting-place of the bones of bygone citizens with which it would be little short of sacrilege to interfere." Another point is that "the general effect of the proposed measure is contrary to the principles laid down by Parliament in a succession of statutes affecting property devoted to ecclesiastical purposes, and is in conflict with the fundamental principle of English law, which provides that rights shall not be taken away without due consideration of all interests concerned."

Art Instruction.

During a "Short Course of Instruction for Teachers in Schools of Art and Art Classes," to be held in London next week, the following programme of lectures, &c., will be given in the Lecture Theatre of the Victoria and Albert Museum:—

Monday, July 19, at 11 a.m.—Inaugural address by Sir Frank Dicksee, P.R.A.

Tuesday, July 20, at 2.30 p.m.—Professor S. D. Adshead, M.A., F.R.I.B.A., on "The Influence of Schools of Art upon Town Amenities."

Wednesday, July 21, at 2.30 p.m.—Mr. Joseph Thorp, on "Art in Printing."

Thursday, July 22, at 2.30 p.m.—Mr. John Platt, A.R.C.A., on "Modern Developments in School of Art Education."

Monday, July 26, at 2.30 p.m.—Mr. F. W. Burrows, H.M.I., on "Junior Departments of Schools of Art."

Tuesday, July 27, at 3 p.m.—Mr. George P. Baker, on "Textile Printing—the Influence of India upon the West."

Wednesday, July 28, at 2.30 p.m.—Mr. Will Miller (Secretary to National Painters' and Decorators' Joint Education Committee of England and Wales), on "The Instruction of Painters and Decorators in Schools of Art."

Thursday, July 29, at 3 p.m.—Sir Lawrence Weaver, K.B.E., on "Design and Craftsmanship in Things of Common Use."

Friday, July 30, at 11 a.m.—Lady Duff Gordon, on "Art in Dress."

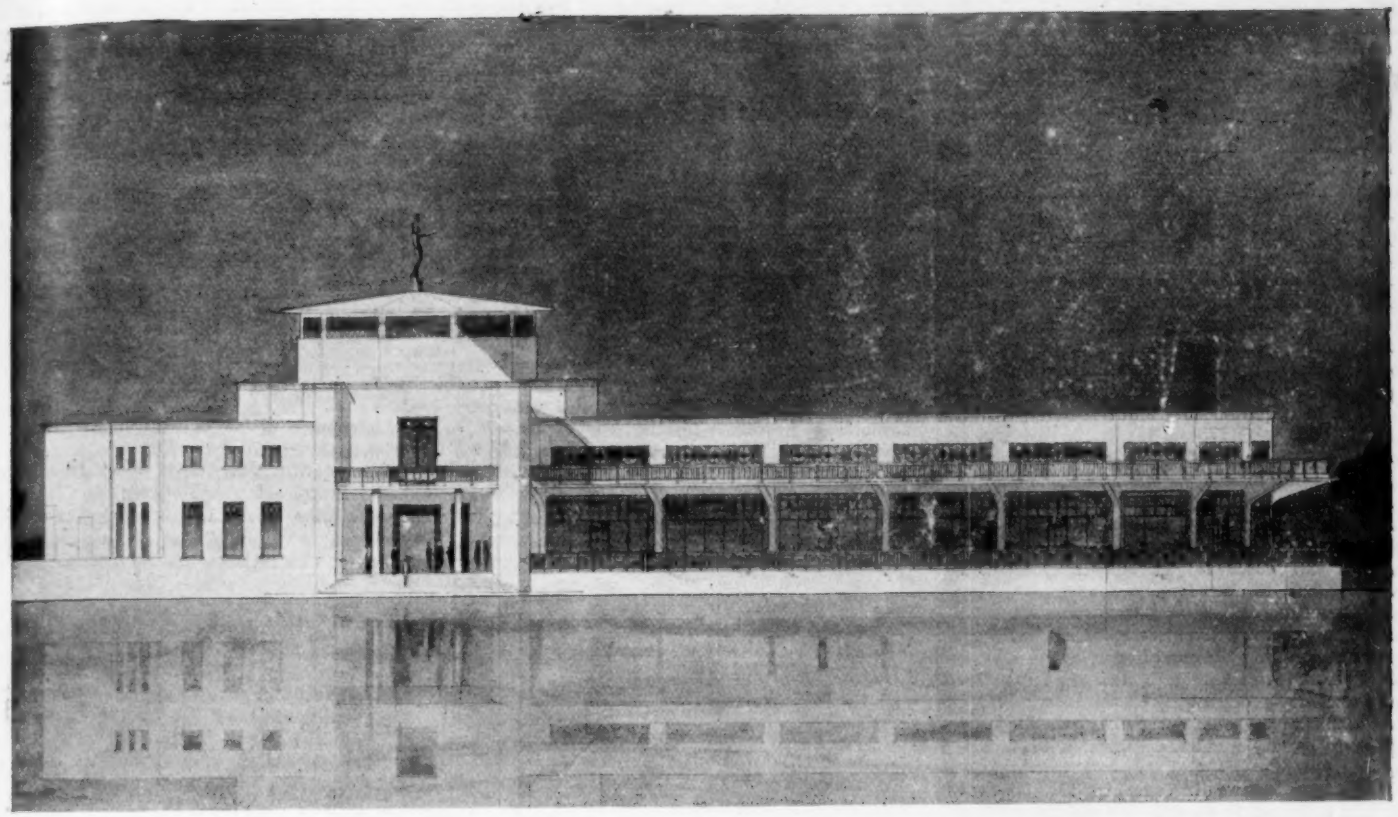
COMPETITION NEWS

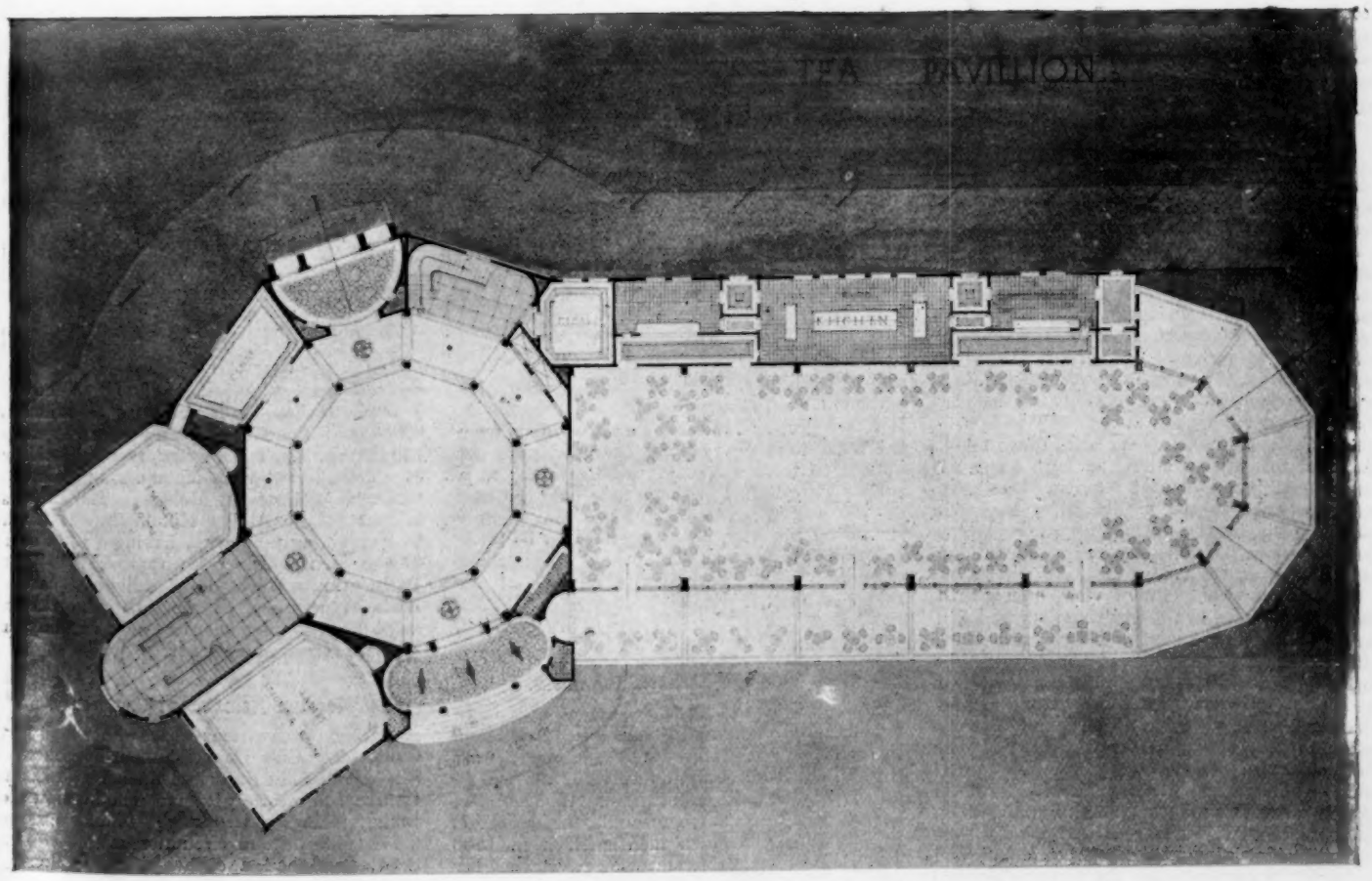
League of Nations Building.

The programme of the competition for the erection of the new building of the League Secretariat and Assembly Hall in Geneva will be made public in all countries on July 31. Competitors will have six months to prepare their plans, which are to be posted by January 25, 1927. The international jury will meet two months later. It is, therefore, possible that the building may be begun before the end of 1927.

COMPETITIONS OPEN.

Plan for construction of Conference Hall, for League of Nations, Geneva. International Competition, Sir John Burnet being British representative on Jury of Assessors. 100,000 Swiss francs to be divided among architects submitting best plans. Programmes General, League of Nations, Geneva, on payment of 20 Swiss francs	Particulars published in "Builder."	Sending in date. Jan. 2, 1925.
Cenotaph, Liverpool. To be erected outside St. George's Hall. Premiums: 1st, £200; 2nd, £150; 3rd, £100; 4th, £50. Author of selected design will be paid commission of 500 guineas, to include premium. Professor C. H. Reilly, assessor. Second premium will only be awarded to ex-Service man	June 11	.. Sept 30
Incorporated Architects in Scotland: (1) Rowand Anderson Medal and £100: City Art Gallery and Museum; (2) Rutland Prize (£50) for Study of Materials and Construction: (3) Prize (£10 to £15) for 3rd year Students in Scotland; (4) Maintenance Scholarship, £50 per annum for 3 years. Apply Secretary of the Incorporation, 15, Rutland-square, Edinburgh	Nov. 6	.. —





Design for a Reinforced Concrete Pavilion by the Serpentine.

BY MISS JESSIE M. GREIG. (*See p.* 87.)

CORRESPONDENCE

[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]

The Cost of Building.

SIR,—Although architects are perhaps in a better position than most people to judge of the effects which any rise or fall in the cost of building is likely to have upon the industry, they seldom express an opinion on building trade disputes, not because any settlement finally arrived at does not equally affect them one way or the other, but that they very rightly consider that such disputes are, as a rule, far better dealt with by the parties actually concerned. In view, however, of the recent demand made for higher wages, coming, as it does, on the present high cost of building, the time has surely come when a note of warning might be given by architects on the possible danger which any further increase in cost may have on the industry.

There is little doubt that the present high cost of building has not only been responsible for holding up a considerable amount of work which would otherwise have been proceeded with, but has, in addition, been responsible for the production of various substitutes to take the place of work formerly carried out by builders, including the steel house, which is now being erected quicker and cheaper than the house formerly produced by the builder, housing work thus passing out of the builder's into the engineer's hands, or from a sheltered to an unsheltered trade.

That any further increase in the cost of building is bound to produce substitutes for the larger and more important buildings goes without saying, for are they not even now slowly drifting into the engineer's hands, with their structural steel frames, patent fireproof floors, steel roof trusses, window casements, &c. Surely these are matters which nobody interested in the building trade can fail to observe.

FRANK NASH, L.R.I.B.A.

London.

Lead and Copper Piping.

SIR,—The instructive article on the "Comparative Costs of Lead and Copper Piping for Water Services," so ably dealt with by Mr. J. H. Barns in your issue of July 2, was interesting alike to manufacturers and building contractors. Mr. Barns proved by his figures that copper tube is cheaper than lead, but he omitted several important factors which go still further to prove his statement. In Scotland, especially, the weight of lead pipe required by the various water corporations is heavier than that quoted by Mr. Barns, and in consequence the cost of lead would be so much more. He takes the cost of labour in both cases as about equal, whereas most plumbers who have had experience in the use of both, maintain that they can fix the light copper fittings very much quicker. Hence, probably, arises the opposition from the trade.

From a practical point of view, and with a lifelong experience in the plumbing trade, I can say it would take a plumber only a third of the time to fix the connections to the copper tube on a job as described by Mr. Barns, as against the making of solder joints and fitting connections for lead pipe. It has been found in many instances that the plumber has saved 50 per cent. of time in fixing copper pipe instead of lead. No doubt, as Mr. Barns states, it would depend altogether on the kind of job and on the number of short lengths and fittings. In the statement of prices of "Special Screwed Fittings" he has estimated the cost on the basis of the catalogue prices, but, as he may not be aware, these special fittings are being supplied even to the trade at 25 per cent. at least less than the estimate he has given. On housing schemes a much greater reduction is given by makers. His remark that the brass screwed connections necessary to join the different pieces of copper seem expensive could, therefore, be greatly modified and builders be able to reduce materially the cost of construction.

I trust that what I have said may be the means of giving some assistance to Mr. Barns in his endeavour to prove his statement, and I take this opportunity of thanking him most cordially for his able exposition on this important subject.

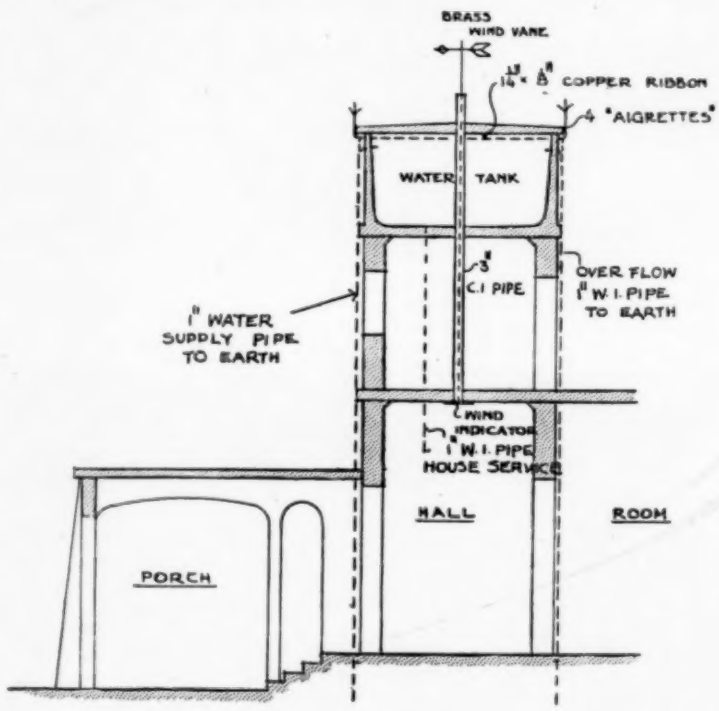
Larbert, Scotland. JAMES THOMSON.

Damage to a Lightning Rod.

SIR,—I send you particulars of damage to a lightning rod in Hongkong. The house is a bungalow in an exposed position, and has a flat concrete roof with concrete water tank on top. A wind vane occupies the centre of the roof of the circular water tank. The lightning rod consists of a 1¼ in. by ⅛ in. copper ribbon round the tank, with four copper aigrettes attached; the ribbon was soldered to a 1 in. galvanised water pipe always full, going to earth, which is always damp. At the time the conductor was struck a lightning flash was seen, but not a very brilliant one, and an instantaneous thunder peal was heard, but not a very heavy one; at the same time a splash was heard on the roof, and it was found that the solder connecting the ribbon to the water pipe had melted and splashed on the roof of the porch. It is now proposed to carry a copper ribbon from the wind vane pipe (which, however, does not appear to have attracted the lightning) to a copper plate buried in the ground near the base of the tower, connecting with the existing ribbon on the way, all connections to be made by screwed clamps and the use of solder to be dispensed with. Beyond the melting of the solder no further damage was done.

L. GIBBS.

Hongkong.



A Roman Tessellated Pavement.

SIR,—One of the finest specimens of Roman tessellated pavement will be re-opened, after an interval of 36 years, at Woodchester, near Stroud, Gloucestershire, on July 26, and will be on view till August 7, inclusive. Woodchester, as indicated by its name, means a Roman station in the wood. Camden mentioned it in 1596 But this remarkable mosaic pavement lay almost forgotten till 1793, when, upon digging a vault—it lies in the old, now disused, parish churchyard—it was again laid open, and Lysons, the learned antiquary, was enabled to take the size of the hall—48 ft. 10 in. square. There is great reason to believe that the roof of the hall was supported with columns; it was also discovered that the pavement had flues under it, which are built of stone. Remains of long passages and many rooms, also with mosaic floors, were discovered adjoining the large hall on either side; also many baths. One gallery was 114 ft. in length. The general design of the hall is a circular area 25 ft. in diameter. From the magnitude of the building it most likely was built for the Governor of the Roman province of South-West England.

HUBERT BURROWS.

Masonic Girls' School.

At a special general court of the governors and subscribers of the Royal Masonic Institution for Girls it has been decided to sign the contract for the purchase from Lady Barrington of the Rickmansworth Park Estate, consisting of 204½ acres, for the rebuilding and extension of the senior school, now situated at Clapham Junction.

City and Manchester Sites.

Two important transactions, involving a total purchase money of roundly three-quarters of a million sterling, have been effected by Messrs. Hillier, Parker, May & Rowden, one being the sale of a City freehold, Nos. 1–8, Great Winchester-street, a block of buildings covering ¾ acre. It has 800 ft. frontage to Winchester Street and London-wall, and a carpet area of 130,000 sq. ft. The buyers' representative was Mr. T. H. Harrowing, Messrs. Dunn, Loman & Coverdale (Great St. Helens). The other site is that of the Albion Hotel, Manchester, and two adjoining properties, having a total area of 25,000 sq. ft. The price approaches £400,000. It is said that the hotel will be replaced by business premises, as the site is at the very valuable shopping corner of Piccadilly and Oldham-street, Manchester.

Roman Remains at Canterbury.

During excavations necessitated by the Canterbury City Council's housing scheme at St. Martin's-hill (near the ancient St. Martin's Church), interesting Roman remains have been found, including two large globular *amphoræ*. These were 5 ft. in circumference, 1 ft. 6 in. in depth, and had a capacity of 8 gallons. In them had been placed the mortuary urns, with their ashes and calcined bones. A Samian ware saucer, a small red earthernware *olla*, practically perfect, a red earthenware flagon, perfect, a large portion of a Roman brick, and three urns in fragments, with bones, were also found. They have been removed to the Royal Museum, where the broken vessels are being reconstructed.

"DRY ROT" (MERULIUS LACRYMANS) IN TIMBER

SIR,—This recurring curse is a source of trouble which architects and others will apparently have to bear for all time. It is unfortunate, of course, but timber being what it is, and timber merchants and builders what they are, one can only face as cheerfully as possible the differing problems presented in each case, and do one's best to cope with them, unhindered and unfogged by the advocates of this or that nostrum, or the comments of the unfortunate client who has to meet the bill. I would strongly urge some of your recent correspondents who appear to be in difficulties carefully to read up the quite voluminous disquisitions that have emanated from specialists and others who have made this tricky subject their own, and to bear in mind that it is intricate to a degree not fully realised till one is faced with the problem in an acute case.

After conning some of the recent letters of inquiry in your columns, I feel I should like to make a few comments which may prove useful to those who, up to the present, are without a lengthy experience in dealing with the subject. (1) That dry rot and wet rot are (through similarity in ultimate effect) often confused, and that there is apparently an inexcusable ignorance as to the differing causes of each, together with a confusion as to the respective remedies called for. (2) That lino, and cork-carpet never were—and never can be—the *cause* of either, but are in most cases merely the concomitants that often augment the existing disease but do not create it. (3) That the fungus has an almost unappeasable appetite for damp—warm damp if possible, but damp at any cost—that it will perambulate over large areas of brick, stone, plaster or stucco surfaces to attain its object. It often passes, and leaves unscathed, the ends of joists, skirtings, and other woodwork to implant itself in a position scarcely imaginable by those not familiar with its habits. This small section of damp may be plaster, brick or stone, and inside a habitable room constantly in use—not a damp unventilated basement—and it will generally be found that this spot is the germinating centre from which the inroads into timber are made. These spots can be discovered, and when found they will nearly always be the key to the problem the unfortunate architect has to solve. (4) That new, unused boarding and timber often (alas ! very often) already have the spawn implanted before the timber leaves the forest where it is cut and seasoned. (5) That it can, and quite frequently does occur in exposed timbers, such as rafters in roofs, where there is no lack of light and fresh air.

One gathers from some at least of your correspondents that they are unacquainted with, or have not carefully studied the invaluable R.I.B.A. pamphlet on this absorbing subject, or the many notes on building materials and their defects contained in such works as dilapidations and the more specialised works on timber. This seems to me to be a pity, as students (whether young, or in "the sere and yellow leaf") who ignore such practical items are laying up future trouble for themselves when suddenly confronted with a really serious case to be dealt with. I think that, almost without exception, all architects have these problems to face at one time or another, and it is a deplorable reflection upon the profession when they have first to admit—or at least to show—an inexcusable ignorance of the import of the subject, and then fail to provide an instant and scientific means of dealing with the trouble. It is, for instance, simply astounding to see the number of forms of disease and decay in woodwork which are indiscriminately labelled "Dry Rot," and which have not the remotest connection with that fungus, or the vast and often useless expense that has been incurred in ridding a building of (if one may be excused an Irishism) something it never contained—and this solely because the so-called expert has not taken the trouble to study timber from other than the cheap text-book outlines; meant, one would think, to confuse rather than help in a dilemma. It is difficult to see why the whole subject does not take a more important place in our architectural schools, or why architects with articled pupils do not insist upon a term of workshop practice, where their young hopefuls might imbibe special practice in the subject of trained inspection of timbers. Apparently it is fobbed off as of quite secondary importance—one which may safely be left to be dealt with when the occasion arises. Hence the tears, lawyers, jokes and empty platitudes, and the heartbreaking schedules of dilapidations in connection with buildings often not twenty-five years of age !

Close study and inspection of the main building timbers in common use—both old and new—examination (with and without the microscope) of impregnated specimens, both before and after the fatal "snuff" has been removed, and the nature of and the shades of colouring formed prior to the wrecking of the fibres, might save many an architect untold trouble and annoyance in later life; and, perhaps, I may add, the peculiar "habits" of this dry rot fungus will prove to any thoughtful student of whatever age a fascinating as well as a profitable study.

Your columns have contained some useful and suggestive remedies, but I would sound a few notes of warning in the hope that they may prove helpful to the younger men amongst us who may have, at any moment, to deal on a large scale with this incorrigible pest. (*a*) Too much draught—a too-vigorous circulation of air under a closed-in floor—can do as much harm in the long run as too little air, especially if some portions of the timber have escaped critical inspection and already contain a particle of the spawn. (*b*) No mere "creosoting" or "carbolising" of the parts known definitely to have been diseased will alone avail—the treatment must not stop here. (*c*) Commercially, there are creosotes *and* creosotes, carbolic *and* carbolic, refined and crude, pure and adulterated. A few minutes' chat with a disinterested analyst and some simple experiments by the architect will result (or should do) in his missing some dire pitfalls and, incidentally, will add a spice of the pioneer to his otherwise dreary drudgery. There is something rather delightful in making up one's own prescription for different woods; for, be it remembered, what may touch and be effective in a soft deal, may be quite useless in tackling a heavy piece of lime-embedded oak or a sodden and firmly fixed plate, sound in the vital parts, but woefully smitten in the others. Serious discolorations to decorative works should be avoided—and can be, by thought and care as to the remedy used. Both or all may be effective in killing the fungus, but one must pay some regard to useless destruction or damage that can be easily avoided. (*d*) Never overlook the painful fact that probably not 1 per cent. of workmen instructed to scrape, clean, scour, remove, and burn *debris*, and then adequately apply the prescribed solutions, will do this, except under the closest personal supervision of the architect or other expert; and that the permanent eradication of the pest and the works afterwards involved will call for the architect spending unlimited time immersed in these unsavoury proceedings—if he is to perform his duty to his unlucky client. (*e*) Show your workmen the process and the means by which you have discovered and traced to its many sources the evil you are up against; get their sympathy and understanding, show them one of your quite simple experiments with the "snuff"—the lines of contact traced out—rouse their interest. Also, never overlook the fact—and don't let the workmen overlook—that at certain stages the fungus is almost invisible to the naked eye, that it has to be sought for by other methods . . . sought for *and found*; that the stuff is blown on to and carried about on the workman's and the architect's clothes; on his hands, face, and in his hair; and that it can be, and is, carried about and dropped from even the tools a workman uses, and that a disaster, it is alleged, has often been traced to a spawn carried on the tooth of a workman's saw. Why is it, one often asks, that such matters as the destruction of the *debris* and the vehicle in which it is carried to the fire is so flippantly dealt with—as matters of the slightest importance ? Too much stress cannot be laid on this stage of the work.

One item more. Clients have often to be firmly dealt with touching the anticipated horrors of chemical smells which, under certain conditions, may hang about for months, and which, for no easily explained reason, may recur from time to time long afterwards. Beware of belittling this—to some people—nightmare. If a client, after the whole position has been clearly explained, prefers the dry rot—or other form of decay giving forth a musty and unhealthy odour—to these healthy but often trying chemical odours—well, so be it ! But don't fail in the obvious duty of warning your client of the consequences, both structurally touching the building and as to the health of the unfortunate inhabitants of the doomed house. Doctors differ on the point, but architects of experience know that the prolonged inhaling in a timber rot-infected room is nothing short of dangerous to the unlucky victims compelled to endure it; and, as we are all "house doctors," the course to adopt is clear enough . . providing one is *au fait* with the details and data of the disease and its physical relation to us mere humans.

F. SIDNEY WEBBER, F.R.I.B.A.

TOWN PLANNING

AT the Conference of the Institution of Municipal and County Engineers, held in Bristol last week, a paper was read by Mr. G. L. Pepler, Town-Planning Inspector of the Ministry of Health, on town and regional planning, in which he said that a Town-Planning Committee should in effect become a Development Committee, continually investigating local activities, and how the future could be helped forward by arrangement or re-arrangement of site and transport facilities.

In recent road development the pedestrian had been rather overlooked. The increased speed of traffic made it necessary to allow plenty of elbow room on the footway, and a margin between the path and the roadway.

Regarding open spaces, he thought that recreation should be within the comfortable reach of everyone. One acre for every 250 of the population was the minimum requirement, and playing grounds for children should not be more than half a mile apart. Open spaces generally should be treated systematically, and not as isolated items, so that when the plan was finally realised, all parts of the place would have their green spaces and approaches spaced out to the best advantage, and so as to give character to the place. Openness could be given to a town by linking up the parks by pathways, some of which might well be strips of green for use by pedestrians or cyclists or horsemen only.

Decentralisation was the only possible cure for the congestion which large towns and cities suffered from, and this could be done by the formation of satellite towns, with open spaces between.

In reply to a question, Mr. Pepler said that the Minister of Health had promised to introduce legislation to deal with built-up areas.

The following progress in town planning during the month ended June 30 is recorded by the Ministry of Health :—

Resolutions (Stage I) deciding to prepare town-planning schemes have been received from the undermentioned local authorities, and, where necessary, approved or authorised by the Minister :

Cornwall : St. Austell U.D.C.

Lancashire : Lytham St. Annes T.C., Sefton R.D.C. (No. 2).

London : L.C.C. (No. 5), L.C.C. (No. 6).

Middlesex : South Mimms R.D.C.

Devonshire : Torquay T.C. (No. 1 Extension).

K

SOCIETIES AND INSTITUTIONS

R.I.B.A.

Maintenance Scholarships in Architecture.

The Board of Architectural Education of the R.I.B.A. announce that the following awards of R.I.B.A. Maintenance Scholarships in Architecture, varying from £50 to £100 per annum, have been made :—

Austen K. Brown, Sunderland; E. L. W. Davies, Colchester; B. I. Day, Bideford, Devon; H. Jackson, Birmingham; E. J. White, Hull; J. O. Wylson, Whitstable (Artists' General Benevolent Institution Scholarship).

The Scholarships are intended to enable promising students to attend approved courses at Schools of Architecture recognised by the R.I.B.A. for the purpose of exemption from its examinations. Applications for Scholarships were received from 40 candidates, and it was a matter of great regret to the committee responsible for the award of the Scholarships that it was impossible on financial grounds to award a greater number. The Scholarships clearly supply a need in the architectural profession, and it is hoped in the future to be in a position to award Scholarships to a total value of £1,000 annually. With this object in view, a capital fund has been started, which it is hoped to increase materially, and it is further intended to found other Scholarships for brilliant students to enable them to continue their architectural education for longer periods.

Registration as Probationer, R.I.B.A.

The Board of Architectural Education call special attention to the fact that, except in very special cases, a Headmaster's Certificate will not be accepted as a qualification for registration as Probationer R.I.B.A. after October 1, 1927, and no one will be registered as a Probationer unless that person has passed one of the recognised examinations in the required subjects. A list of the examinations recognised may be obtained free at the R.I.B.A.

Notes from the Minutes of Council, June 21st.

The Conservation of Ancient Monuments and Remains.—On the recommendation of the Art Standing Committee, a revision of the two official R.I.B.A. documents upon this subject, which appear in the Kalendar, was approved and ordered to be published.

The Old Ashmolean.—It was decided to open a subscription list for the purpose of providing a Wren Memorial Window in the Old Ashmolean building at Oxford.

The Preservation of Old Bridges.—On the recommendation of the Art Standing Committee, the Board of Architectural Education was requested to invite all Recognised Schools to encourage their students to measure bridges of architectural or archæological interest.

Mr. Cass Gilbert.—The Council sent their congratulations to Mr. Cass Gilbert, Hon. Corresponding Member, on the occasion of his election as President of the National Academy of America.

London Building Acts.—The report of the London Building Acts Committee on the revision of the Acts was received by the Council, and it was decided to send a comprehensive statement to the L.C.C. on the subject and to request that body to receive a deputation.

Smoke Prevention.—On the recommendation of the Science Standing Committee, it was decided to request the L.C.C. to reconsider their decision on the subject of a suggested inquiry into smoke prevention.

The Forestry Commission and the R.I.B.A. Scale of Charges.—On the recommendation of the Practice Standing Committee, it was decided to forward certain correspondence to the Forestry Commission and to urge that proper fees should be paid and fully qualified architects should be employed.

Hon. Secretary, R.I.B.A., for Canada.—Mr. Victor Horsburgh, F.R.I.B.A., of Toronto, was appointed Hon. Secretary for Canada, in succession to the late Mr. F. S. Baker.

Membership.—Mr. Arnold Mitchell was transferred from the list of retired Fellows to the list of practising Fellows. Mr. R. C. Jones was reinstated as a Licentiate. The resignation of the following members were accepted with regret: W. A. Gagnon (L.), J. O. Harris (L.), G. H. Higginbottom (L.), S. S. Reay (F.), H. C. Richardson (A.), W. P. Schofield (A.), W. White-Couper (F.), H. J. Yorke (L.).

International Housing and Town-Planning Congress, Vienna.—Mr. E. C. P. Monson was appointed delegate of the R.I.B.A. to this Congress, to be held in Vienna from September 14 to 19, 1926.

Studentship.—On the recommendation of the Board of Architectural Education, the following were elected Students of the R.I.B.A.: H. A. Barton, Technical College, Cardiff; E. D. N. Bomer, A.A.; R. G. Booth, A.A.; M. F. R. Ellis, A.A.; H. E. Hill, Leeds School of Art; J. S. Kelsall, A.A.; F. E. B. MacManus, A.A.; D. M. Micklethwaite, University of London; D. G. Mirams, University of London; G. S. Shand, Glasgow School of Architecture; B. L. Sutcliffe, University of London; S. T. Walker, Cambridge University.

UNIVERSITY OF LONDON SCHOOL OF ARCHITECTURE.

The following elections have been made :—

Mr. Frederick William Holder, of University College School, to the Trevelyan Goodall Scholarship.

Mr. Hugh Hubbard Ford, of Eastbourne Municipal Secondary School, and Mr. Eric Frank Starling, of Whitgift Middle School, Croydon, to Bartlett Entrance Exhibitions of £40 a year for five years.

Tenable in the School of Architecture at University College, London.

BRISTOL AND GLOUCESTER ARCHAEOLOGICAL SOCIETY.

Annual Meeting.

The forty-first annual meeting of the Bristol and Gloucestershire Archæological Society was held in Bristol recently. The report, presented by Mr. Roland Austin, hon. general secretary, showed that the membership was now 736, the highest the Society has ever touched. Professor A. Hamilton Thompson, M.A., D.Litt., F.S.A., was elected president; the Dean of Gloucester, chairman of the Council; Mr. J. J. Simpson, vice-chairman; Mr. Roland Austin, hon. general secretary and editor; and Mr. W. Leighton, hon. secretary for Bristol. Mr. J. E. Pritchard, F.S.A., was elected an honorary member of the Society.

AUCTIONEERS' AND ESTATE AGENTS' INSTITUTE.

In his Presidential Address to this body, delivered in the De Montfort Hall, Leicester, on July 15, Mr. Francis H. Rex said that membership of the Institute, which could now only be obtained by examination and by evidence of proper training, was becoming more and more an index of capability and integrity was evidenced by the increasing number of examinees presenting themselves year by year. Last March over 900 entered for their examinations, and the passes showed the very creditable proportion of over 72 per cent. With regard to their unsuccessful application for a Charter, he had come to the considered view that the refusal need not in the least impede their progress, or delay their development on the lines they had determined for themselves. When basing their Institute's objects upon the plane of a profession they were not unmindful of the fact that there would be many who would be ineligible for membership and it could not, therefore, be a matter of surprise that a number of these should seek to, form societies of their own. Under Article 92 which was one of the Articles of Association governing the Institute and approved by the Members at the necessary Special Meetings, it was provided, *inter alia*, that :—

> (2) No Member shall establish or join either as principal or assistant any commercial firm, or undertaking, for the purpose of carrying on or assisting to carry on professional business as an adjunct to or in connection with the commercial business of such firm.

The Council, being governed by this Article, had no discretion in this matter, and, therefore, all applications for new membership must comply with it. It was generally accepted as a wise and necessary stipulation, and throughout the country the Branches strongly supported the provisions of this Article.

With regard to Registration, they would remember that in 1922 they joined with the Surveyors' Institution and the Land Agents' Society in promoting a Bill for the Registration of Landed Property Practitioners, but were unsuccessful, owing to the peculiarities of Parliamentary procedure, in getting a Second Reading. Although, had they been successful, advantages might have accrued to future generations, the question arose whether the disadvantages to the present Members of the Institutions concerned would not be very great in more ways than one and whether the same ends could not be attained by other means. This was a matter the Council of their Institute would doubtless consider seriously in due course. Whatever course might be suggested for the future, of one thing he felt assured, and that was that their 5,600 members would not agree to any lowering of the standard they had set themselves.

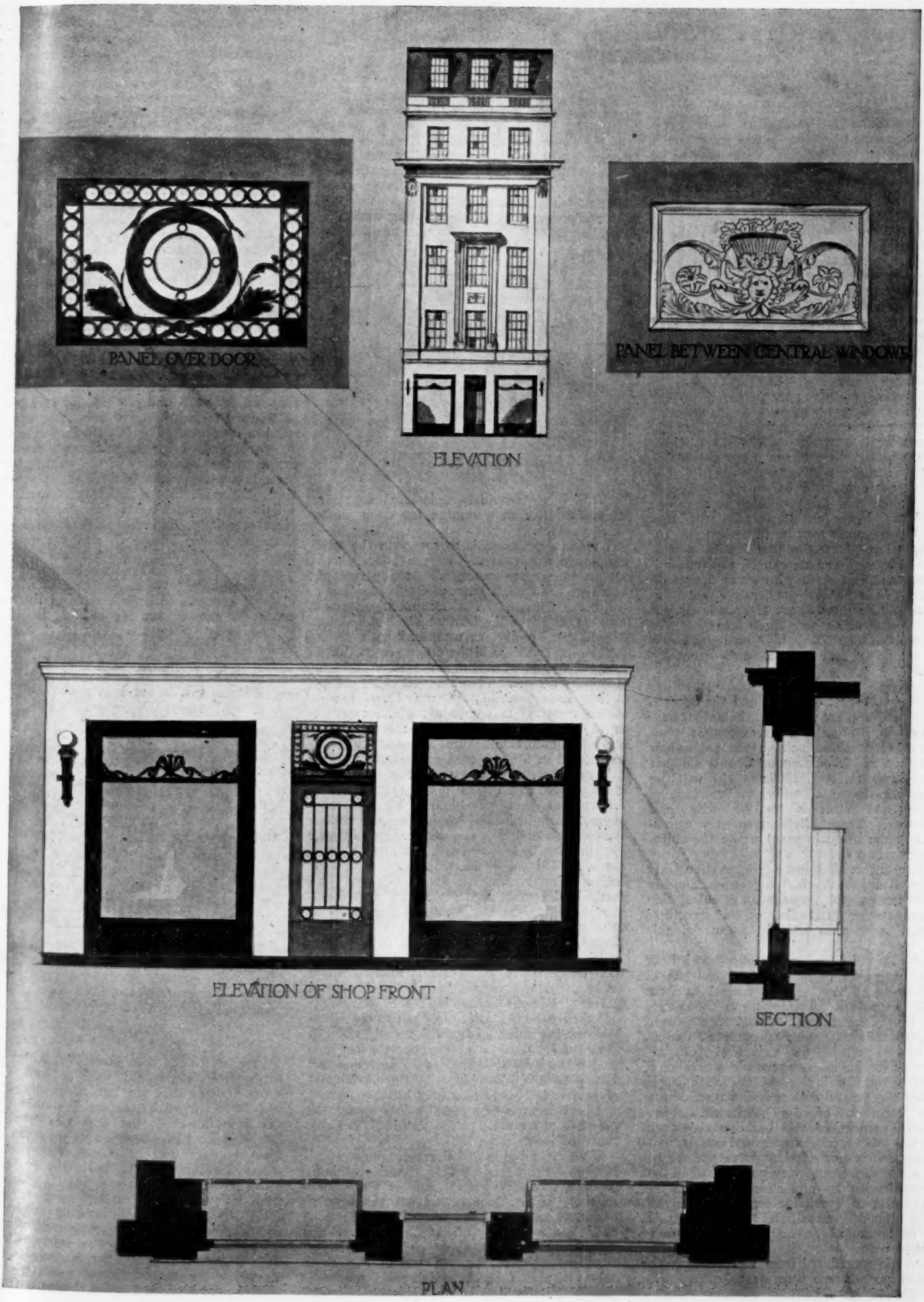
Within the last few days, continued the speaker, Lord Darling had made an effort for the removal of that curse of their profession, the "knockout." Lord Darling's Bill consisted of only two clauses, the second being merely the short title. Clause 1 read :—

> Any agreement made with reference to a sale by auction not to bid at the sale in competition with any other person with intent that the property offered for sale shall be afterwards acquired by the person making the agreement or some other person from the purchaser of the property at the sale shall be void, and the sale of property in pursuance of any such agreement shall also be void.
>
> Any person who enters into any such agreement shall be liable on summary conviction to a fine not exceeding fifty pounds, and on conviction on indictment shall be liable to a fine not exceeding one hundred pounds or to imprisonment not exceeding six months, or to both such fine and imprisonment.

The spirit underlying this proposal would, he thought, have the whole-hearted support of all members of their Institute. It might well be that Lord Darling's measure, if it became an Act, might serve as a valuable deterrent to a very objectionable practice.

Referring to housing, the speaker said that as one accustomed all his life to dealing with landlords and tenants, he would go so far as to say that by the end of 1927 the housing difficulty would really be at an end, and that the necessity for restrictive legislation imposed by the Rent Acts would have passed. The removal of this legislation would, in his opinion, give a renewed impetus to private enterprise, which, in normal times, had provided housing accommodation for about 95 per cent. of the people.

With regard to the slum problem, that little or no compensation was given for the buildings which were in an uninhabitable condition and which were past the stage of repair, was understandable, but to give nothing for houses that were repairable, and then to allocate the compensation awarded to the freeholder alone, while in the vast majority of cases he had powers that, had they been exercised, would have prevented the condition of the property becoming impossible, was surely inequitable. Further, to deduct from the compensation a proportion of from 30 to 60 per cent. towards the open spaces to be laid out by the acquiring authority, recalled to them that class of highwayman they admired so much in their youth, but as they grew to a more mature age they described as dishonest. If it was true that the London County Council alone had 1,900 areas scheduled as insanitary areas, and that this indicated the general position throughout our great cities, it was imperative that modifications of the present legislation should not be delayed.



R.I.B.A. Approved Testimony of Study: No. LXXXVI. Final Examination.

DESIGN FOR A SHOP FRONT BY MR. W. T. LLOYD.

(Published by arrangement with the Board of Architectural Education.)

STRUCTURAL PROBLEMS

CONNECTED WITH THE PROVISION OF AN ADDITIONAL STORY TO AN EXISTING BUILDING.

BY G. A. GARDNER, M.I.Struct.E., Assoc.I.E.E., etc.

I.

THE proposition to provide an additional story to an existing building is one easily conceived but often far-reaching in its structural effects—reaching sometimes, in fact, from the apex of the roof down to the very foundations. The utilisation of a flat roof to form an extra floor readily suggests itself to the commercial architect, and it is with propositions of this sort, in the case of buildings of the public and warehouse type, that these articles are primarily concerned. The difficulties offered by the construction of the additional story itself are comparatively slight compared with those concerning the augmentation of strength of the sub-structure, especially in cases where not only a flat-roof construction has to be strengthened but also the supporting pillars and sometimes the brickwork, foundations, etc.

After preliminary plans are prepared by the architect, to meet, as far as possible, his client's wishes, the consultation of a professional structural engineer is advisable before any further progress is attempted. The engineer should be instructed to make a structural survey of the premises and prepare a carefully considered report in order that the possibility of the project and the degree of interference with the user of the premises may be investigated. In this way (if the project is practicable) a properly co-ordinated scheme can be evolved and an estimate of cost made with a fair degree of accuracy. Where this co-operation between architect and engineer is not arranged, serious structural difficulties sometimes subsequently ensue, and although they may be ingeniously overcome, delay and financial loss generally results.

The strength of the existing roof to function as a floor is the first question, and the criteria in this connection are: (*a*) will the subsequent conditions of loading and stress comply with such statutory regulations as are applicable, *e.g.*, section 22 of the London County Council (General Powers) Act, 1909; or (*b*) will the construction have a sufficient margin of strength and stiffness to be safe and satisfactory. These alternatives may constitute the same thing in cases where the statutory regulations embody a clause giving power of waiver authorising the administrative body to approve any reasonable proposition—and in these instances such refinements of calculation and computation of loading as the structural specialist is able to embody are a valuable asset.

Much of the flat-roof construction carried out at the beginning of this century consists of rolled steel "Filler" joists spaced at from 2 to 3 ft. centres, spanning from about 8 to 15 ft. between the main beams and enveloped with Portland cement breeze concrete 5 to 8 in. in thickness forming the structural roof slab. This construction at once presents a number of problems, but the first consideration must be whether the breeze concrete has caused appreciable corrosion of the steelwork. Some modern specifications and building codes prohibit the use of coke breeze and similar coal residues for concrete-steel construction, for not only is breeze concrete very porous, and in that sense an inadequate protection against rusting, but the risk of a sulphur content which may further attack the metal, and the relative weakness of breeze as an aggregate, have to be reckoned with.

Fig. 1 is reproduced from a photograph of a piece of poor breeze concrete taken from the roof flat of an important London building. U indicates pieces approximating to unburnt coal; C, pieces of coke; and *c*, fragments of very porous clinker. Needless to say, apart from its unsuitability in other respects, such a concrete as this has doubtful fire-resisting qualities, and in fact some of the ingredients in its aggregate are sold to the blacksmith as fuel!

If the deterioration of the steelwork is considerable and there is likelihood of continual corrosion due to excessive humidity in the atmosphere or presence of water (as in some manufacturing processes), it may not be feasible or wise to utilise the existing construction; but in any case the section modulus of

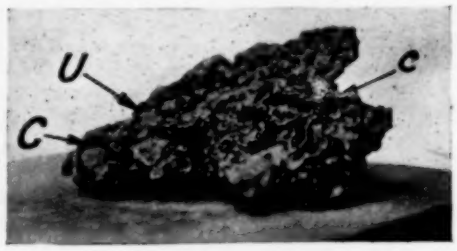


FIG. 1.

the R.S. joists should be calculated on their net profile after an allowance has been made for rust losses.

It is always advisable to ascertain the web and flange thickness of the joists, for it was not an uncommon practice at the period of which we are speaking to use German sections in lieu of British. The minimum ultimate tensile strength of the German steel was about 24 tons per sq. in., as compared with 28 in the case of British, and the differences between the profiles and overall dimensions of sections nominally the same (due amongst other things to the incompatibility of the English and metric systems) may give a useful indication as to the probable quality of the steel and hence the maximum flexural stress which could be allowed in the proposed reconstruction.

If as a result of laying bare the steel joists it has been found that deterioration is not serious but that nevertheless the proposed augmentation of loading would cause prohibitive stresses and undue deflections, a strengthening system must be schemed out, and this, in some cases, will involve the main and secondary beams (if any) as well as the filler joists. The method of strengthening the roof slab itself may depend, *inter alia*, upon the sufficiency or otherwise of the concrete filling to take the proposed floor loading, and this is a matter which must be decided at the outset. If the concrete is of gravel, broken stone or hard brick, a calculation of the shear and flexural stresses assuming the somewhat stringent condition of simply supported spans between the filler joists, will usually show it to be sufficient, but if breeze concrete has been used this may not be the case. No very exact data is readily available as to the modulus of rupture and shear resistance of breeze concrete, and on this account a more or less severe test (*in situ*) of a portion of the slab itself is sometimes advisable.

If it is required to find the minimum strength of the slabbing regarded as a series of independent spans between the filler joists, care must be taken, in carrying out the test, to eliminate assistance from contiguous portions of the construction. This is sometimes effected by carefully cutting away strips of the surrounding concrete, as indicated in Fig. 2, to lessen the arch action which must otherwise obtain in some degree. If, however, the end bays of the slabbing are confined by the lateral stiffness of main beams or girders, or if there is a continuous system of tie rods between the filler joists, the additional strength due to arch action may safely be utilised. In making an approximate calculation of the maximum carrying capacity due to arch action (assuming no yielding laterally) the thickness and rise of the internal arch may be taken such that the efficiency of the arch is a maximum, but the depth for vertical shear resistance, whether for beam or arch action, should be taken not greater than the depth of the filler joists between the flanges, to allow, amongst other things, for the cracking of the concrete which sometimes occurs over the flanges—see Fig. 2.

In the comparatively rare instances where the existing concrete slabbing must be supported between the filler joists, the problem may be met in one way by introducing additional joists, as shown in Fig. 2, and evoking their resistance by ramming in "dry" cement and sand mortar between their top flanges and the underside of the concrete, or by carefully driving in at intervals of a foot or two, steel packings (slightly tapered at their nose), and afterwards filling in with the mortar. Reference to the casing in of the added joists will be made in a later article.

The more usual case, in which the concrete slabbing is sufficient but the filler joists are inadequate, will now be dealt with. Referring to Fig. 3, beam A has been introduced to halve the span of the filler joists, and beam B to take the end of A and prevent, for example, a point load being brought over the existing window openings. The other end of A is also shown supported by an additional beam C, owing to the inadequacy of the existing stay-beam between the stancheons, and, as is sometimes the case, to the difficulty of making a satisfactory connection to the stancheons or, more especially, columns. The relative positions of beams B and C, and the span of beam A, will depend to some extent upon the margin of strength in the main beams, and the depth available between the underside of the existing concrete and the bottom of the main beams in cases where the existing headroom of the story below must not be encroached upon.

Taking a case in which the combined weight of construction and imposed loading is to be, say, 50 per cent. in excess of the existing con-

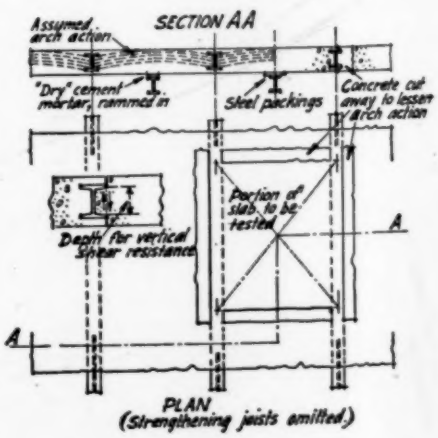


FIG. 2.

ditions, it can be seen from Fig. 3, by comparing the superposed hatched and cross-hatched areas that the equivalent distributed load to be carried by the existing main beams would be lessened, but that this favourable condition would be modified by the point loads from beams B and C. A plot of the bending moment values will facilitate the finding of those positions of beams B and C, which will keep the *maximum* bending moment on the main beam down to its existing amount, or down to an amount compatible with such increase of stress as may be safely allowed. Fig. 3 shows a typical bending moment plot in which the maximum value remains practically unaltered, and although this will mean that the flexural stresses at the centre of the existing beam are not modified, the increased shear and flexural stresses towards the ends must not be lost sight of; nor must the strength of the column or stancheon brackets be overlooked.

If the main beams comprise built-up compound R.S. joist and plate sections or are in the form of riveted plate girders there will be, especially in the latter case, many secondary considerations for the structural specialist to take into account, and in old girder work it is usually the case that the riveting, particularly at the flange joints, is the limiting factor. Bad workmanship is often met with in opening up old structures, and therefore in cases where it is proposed to encroach at all seriously upon the conventional factors of safety, too much reliance should not be placed on the original detail drawings, but as much of the story as possible should be obtained from the site.

The connections of the system of strengthening beams to the existing steelwork often present a number of problems due to inaccessibility, difficulties of erection, etc., and in some cases, as in public buildings, for example, the necessity of reducing to a minimum the noise and inconvenience due to cutting away existing concrete casing, etc., may even dictate the form of connection to be used. In some in-

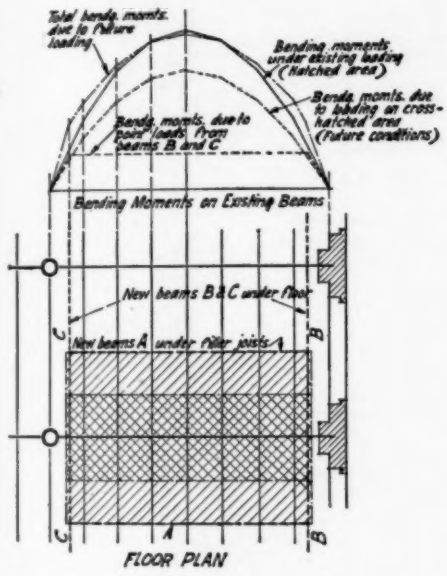

Total bending moments due to future loading
Bending moments under existing loading (Hatched area)
Bending moments due to loading on cross-hatched area (Future conditions)
Bending moments due to "point" loads from beams B and C
Bending Moments on Existing Beams
New beams B & C under floor
New beams A under filler joists
FLOOR PLAN

FIG. 3.

stances the beams B and C (Fig. 3) have to be somewhat deeply notched away at the bottom where they connect to the existing beams, and in such cases the secondary stresses resulting from this must be considered. Generally speaking, the secondary stresses, such as rotational shear on the bolts or rivets, flexural and torsional stresses in the angle cleats, etc., must be dealt with in designing the connections, and although this involves extra calculation work, there is nothing very unpractical about it, as some have suggested—it being by far the more unpractical thing to provide connections which either belie the stress specification or constitute a weakness in the general scheme.

Before passing on to mention several methods which may be ordinarily used to augment the strength of the existing main beams or girders where necessary, the question of bringing into play the resistance of the system already considered will be touched upon.

(To be continued.)

Preserving Cockington Village.

In the town-planning scheme which the Torquay Town Council is now formulating, provision is made against any future despoiling of the adjacent village of Cockington, so beloved of artists and photographers. Regulations will be framed preventing the erection of any red brick houses in or about the place or the commission of any structural act which would detract from the old-world beauty of the villages, with its famous forge and its cob-walled and thatched-roofed cottages.

BOOK REVIEWS

Primary Stresses in Timber Roofs. PROFESSOR A. J. SUTTON-PIPPARD, D.Sc., and W. H. GLANVILLE, B.Sc. Building Research Technical Paper No. 2. (London: H.M. Stationery Office.) 1926. Price 1s. 3d. net.

In the design of roofs the estimation of the loads carried by the several members under any given system of loads is a matter of primary importance, and is usually effected under certain assumed conditions. One of the usual assumptions made is that each member is straight and isotropic; also that it obeys Hooke's law. In the case, however, of timber roof trusses these assumptions do not hold, for curved members are frequently employed and obviously timber is never isotropic. This paper details an account of an investigation of this portion of the problem of determining the loads carried by the members of a roof, including curved struts, &c. Obviously the variation of E with and across the grain is not amenable to mathematical treatment, and these variations are ignored. A bent member under an end load is subjected to compressive and bending stresses, and each of these contribute to the change of form and dimensions, and this part of the problem is dealt with in detail by the authors. In the result they propose that the curved members shall be replaced by straight members of the same dimensions, but of a lower value of E; calculate the loads carried by such straight members in the usual way, and then determine the stress in the actual curved members by means of an equation deduced by the authors in their examination of the relative conditions of straight and curved members. The investigation includes frames containing redundant bars, and states the method of applying the principle of least work usually employed very clearly, and reinforces it by a detailed example of hammer beam roofs—including the famous Westminster Hall roof.

Altogether this little paper is one that will be read with the greatest interest by all concerned in the design of roofs containing curved members, and we think that students will find it very useful in their study of this special type of roof.

Theory of Structures. By H. W. COULTAS, M.Sc. (London: Sir Isaac Pitman & Sons.) 1925. Price 15s. net).

This book is devoted primarily to *theory* only; a second book is promised in which that other side of the subject is to be dealt with.

The earlier chapters deal with the problems of loaded beams, showing how to compute the stresses due to concentrated and distributed loads, and the deflections produced. The treatment is always simple and direct, and well illustrated by worked examples. The chapter on columns will prove useful to students, for the steps of the demonstrations are very fully worked out, leaving very little for the readers to fill in.

The next section treats of framed structures under dead loads, the stresses produced, and the determination of the deflections for perfect frames, with examples showing how the work of calculation may be simply arranged in tabular form.

Following this, the subject of redundant frames, is dealt with, by means of the principle of least work, the example given including portals. Next follows the treatment for moving loads, chiefly by means of "influence line" diagrams, treated in the customary manner, which, incidentally, misses some of the simplicity of this powerful method of determining the position of the load system for maximum stresses.

Only three-pinned arches and suspension bridges stiffened are considered in some detail. Compound stress problems leading up to the usual treatment of walls and masonry dams, also reinforced beams, complete a work which, by reason of its clearness and wealth of worked examples, cannot fail to be of great value to students and designers of structures. A feature of some value is the full reference to other works on the same subject at the end of each chapter. The printing and illustrations are generally good.

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ILLUSTRATIONS.

London School of Hygiene and Tropical Medicine.

We illustrate this week some of the architects' drawings for the new London School of Hygiene and Tropical Medicine, of which the foundation stone was laid by the Minister of Health on July 17. The site for the new building is bounded by Malet-street, Keppel-street and Gower-street, and is adjacent to the Bloomsbury site that had been proposed for the London University. The main entrance will be from Keppel-street, facing the rear elevation of the British Museum, and access is given here to the Administrative Department and Main Lecture Hall on the ground floor, and to the Library and Museum on the first, second, and third floors. The rest of the plan is laid out in the form of the letter H, with secondary entrances and stairs, &c., from Gower and Malet-street on the centre bar of the H, which encloses two large lighting courts. The research and teaching divisions are entirely disposed round these courts, sanitary science and tropical hygiene on the ground floor, the Departments of Physics and Physiology and of Vital Statistics on the first floor, Chemistry and Bacteriology on the second floor, and the Medical Biology Departments on the third floor. Extensive provision for animal quarters is made on the fourth and fifth floors. There is a large and well-lit basement devoted to workshops, animal *post-mortem*, X-Ray Department, photographic work, museum storage, students' lockers and lavatories, &c.

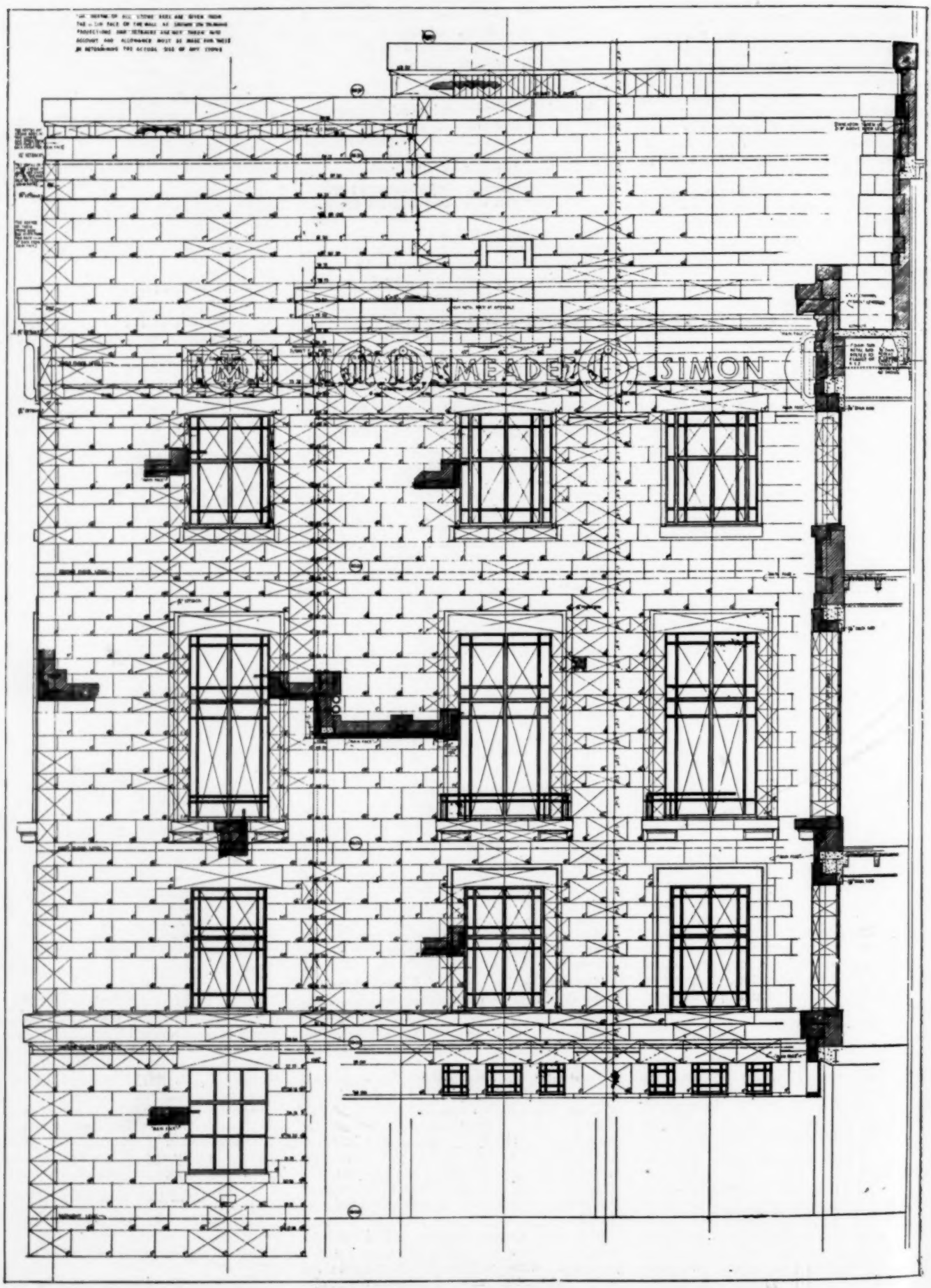
Messrs. James Carmichael, Ltd., are carrying out the foundation work, and Messrs. Archibald Dawnay & Co., Ltd., the structural steelwork, from drawings prepared by Mr. C. H. Lobban, D.Sc., A.M.Inst.C.E. Mr. T. J. R. Kiernan, B.Sc., M.Inst.C.E., is the consulting engineer for the mechanical services, Mr. P. Morley Horder and Mr. Verner O. Rees, of 5, Arlington-street, St. James's, S.W.1, are the architects.

R.I.B.A. Testimonies of Study.

Arrangements have been made between the Board of Architectural Education of the R.I.B.A. and *The Builder*, whereby approved Testimonies of Study submitted by candidates for admission to the R.I.B.A. Examinations will be published from time to time in *The Builder* for the guidance of students as regards the standard required by the Board. We give this week four Testimonies of Study, copies of which and of other Testimonies, as they appear, can be obtained free of charge to students on application to the R.I.B.A.

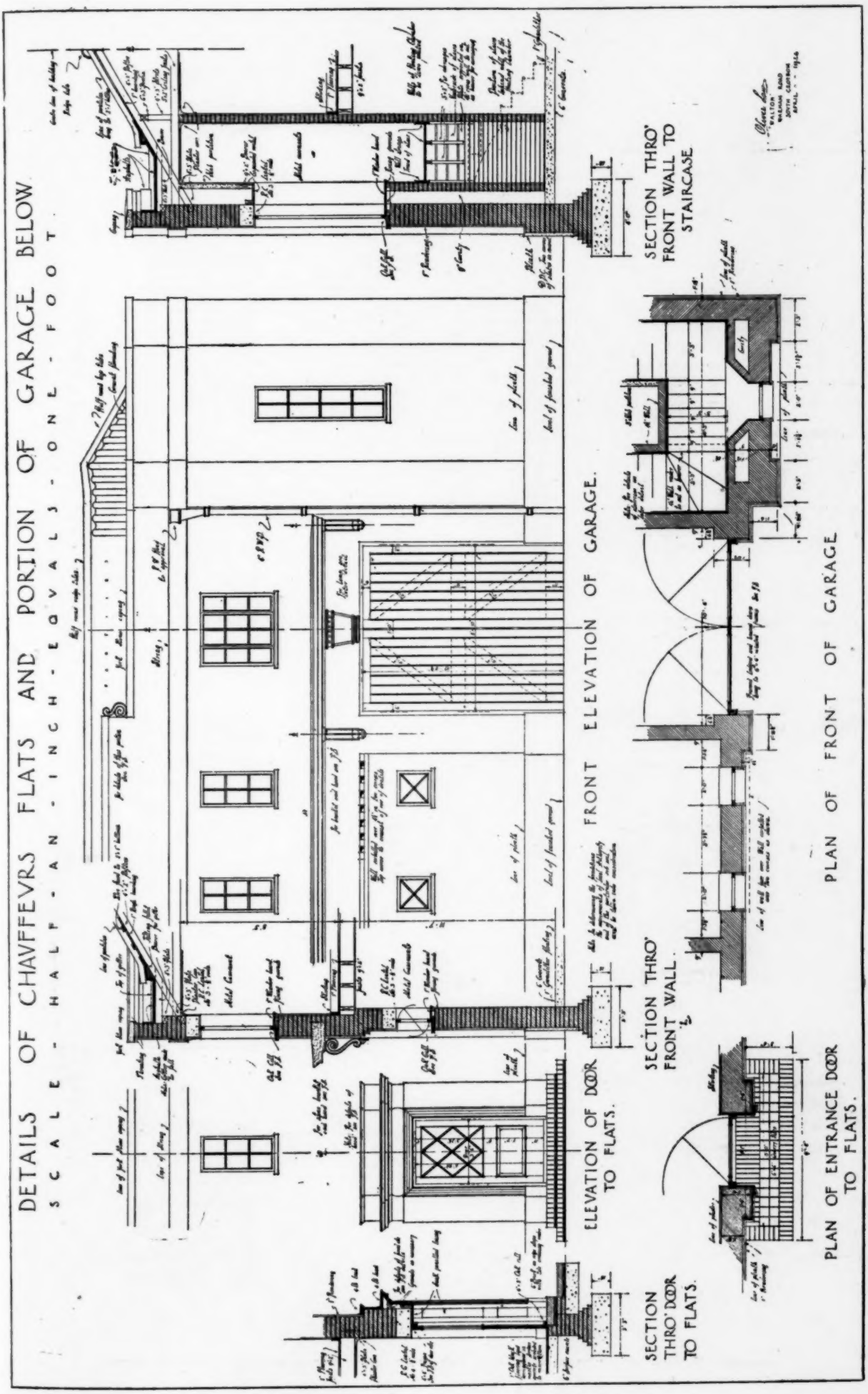
A Reinforced Concrete Pavilion.

We illustrate in this issue a design for a reinforced concrete pavilion, by Miss Jessie M. Greig, which has just been awarded the "Concrete and Constructural Engineering" prize of £25 by a jury consisting of Mr. H. V. Lanchester, F.R.I.B.A., Mr. Arthur Davis, F.R.I.B.A., Mr. C. Lovett Gill, F.R.I.B.A., Professor A. E. Richardson, F.R.I.B.A., and Mr. Hector Corfiato, A.R.I.B.A. This prize is awarded annually by Concrete Publications, Ltd., to further architectural interest in reinforced concrete.



London School of Hygiene and Tropical Medicine: Detail of Principal Elevation.

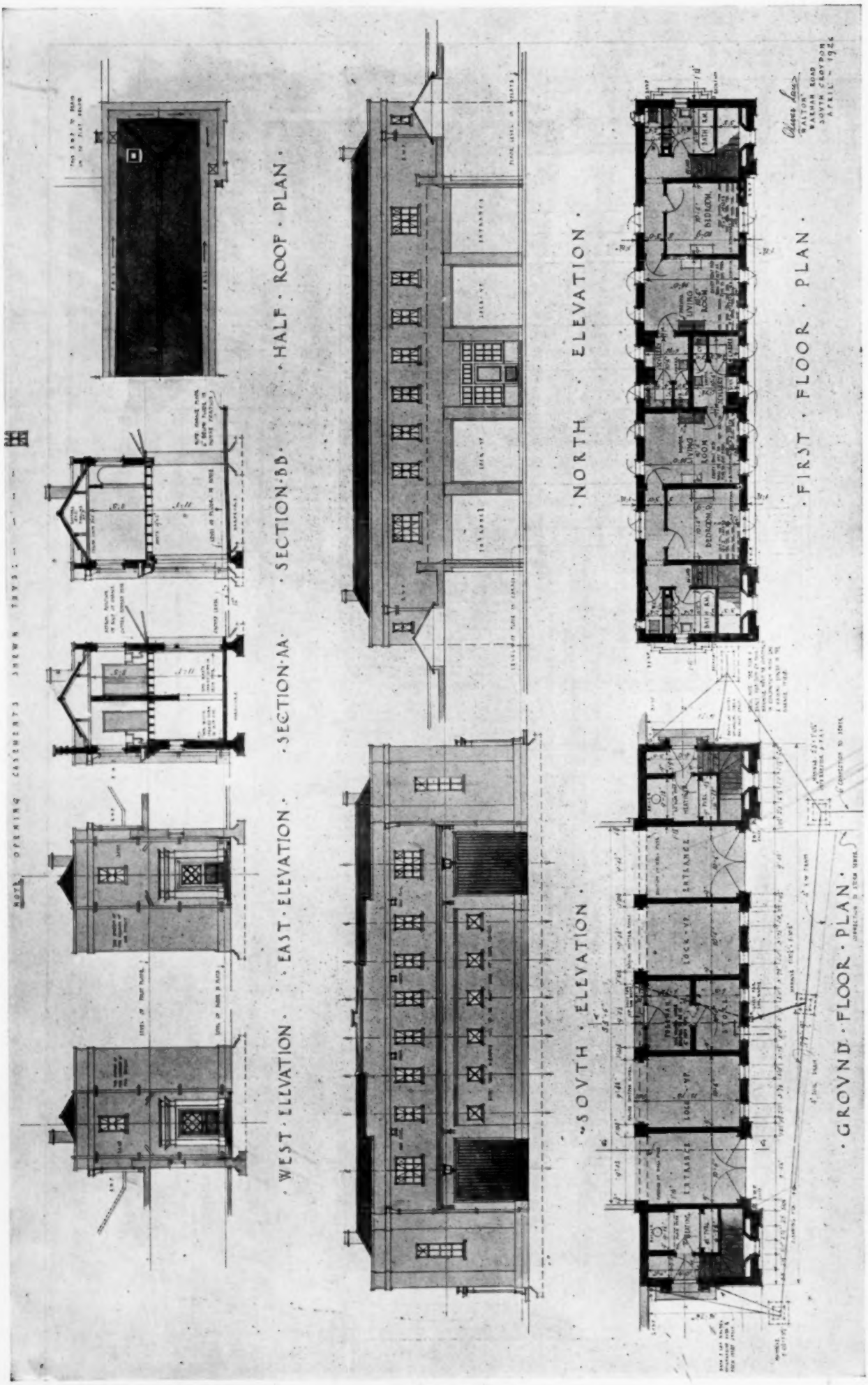
MESSRS. P. MORLEY HORDER & V. O. REES, Architects.


DETAILS OF CHAVFFEVRS FLATS AND PORTION OF GARAGE BELOW
SCALE - HALF - AN - INCH - ONE - FOOT.
SECTION THRO' FRONT WALL TO STAIRCASE
FRONT ELEVATION OF GARAGE.
SECTION THRO' FRONT WALL OF GARAGE
ELEVATION OF DOOR TO FLATS.
SECTION THRO' FRONT WALL.
SECTION THRO' DOOR TO FLATS.
PLAN OF ENTRANCE DOOR TO FLATS.

R.I.B.A. Approved Testimonies of Study: No. LXXXIV. Final Examination.

DESIGN FOR A GARAGE, SHOWING CHAUFFEURS' FLATS. BY MR. OLIVER LAW.

(Published by arrangement with the Board of Architectural Education.)


· HALF · ROOF · PLAN ·
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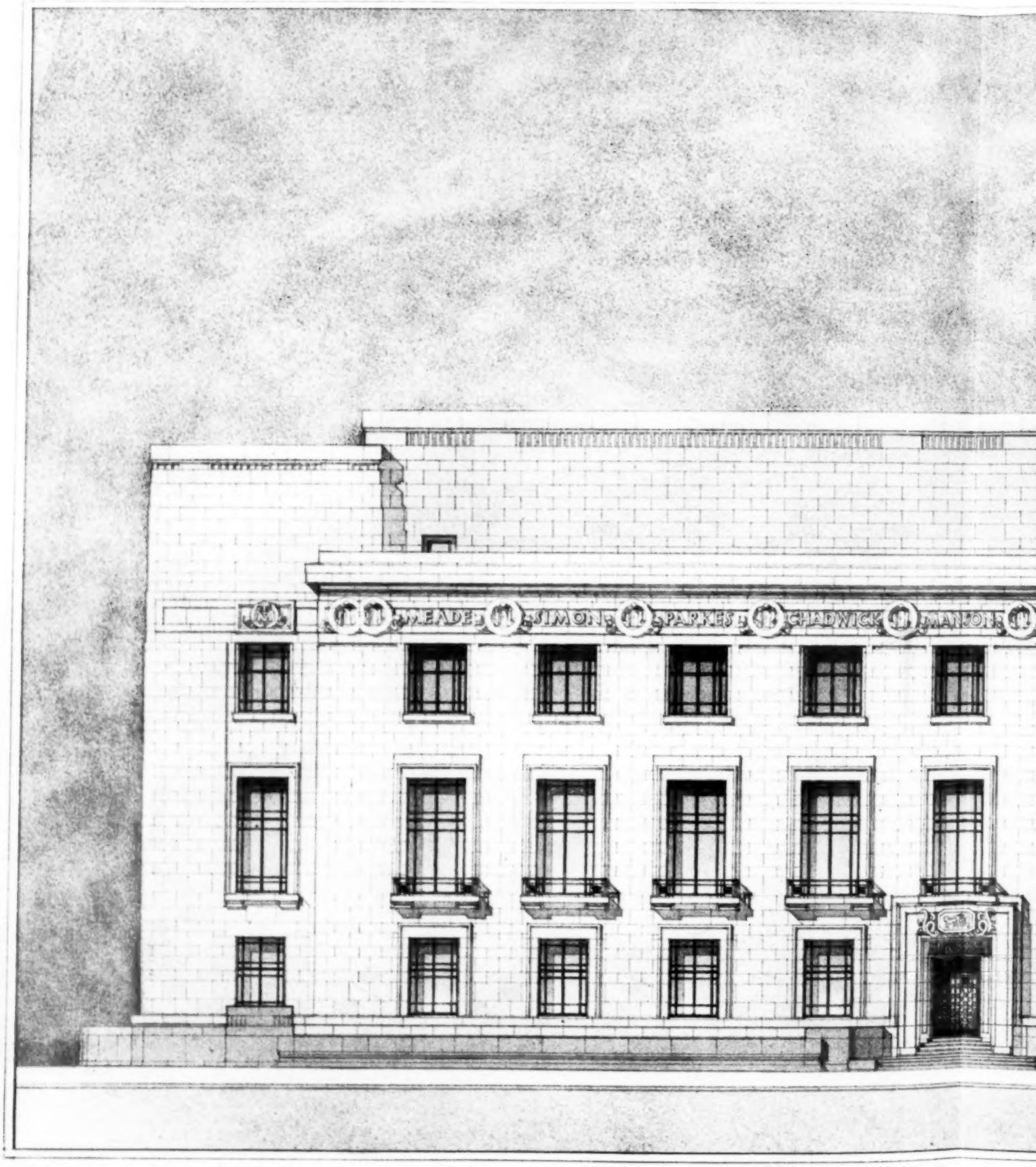
· WEST · ELEVATION ·
· EAST · ELEVATION ·
· NORTH · ELEVATION ·
· FIRST · FLOOR · PLAN ·
· SOUTH · ELEVATION ·
· GROUND · FLOOR · PLAN ·

R.I.B.A. Approved Testimonies of Study: No. LXXXIV. Final Examination.

CHAUFFEURS' FLATS. BY MR. OLIVER LAW.

DESIGN FOR A GARAGE, SHOWING CHAUFFEURS' FLATS OVER.

UNIV. OF BIRM.



LONDON SCHOOL OF HYGIENE AND TROPIC

MESSRS. P. MORLEY HORDER & V. O. REES, A

AND TROPICAL MEDICINE.

V. O. REES, ARCHITECTS.

LONDON SCHOOL OF HYGIENE AND TR

MESSRS. P. MORLEY HORDER & V. O. R

1/8" ELEVATION TO MALET STREET 34

HYGIENE AND TROPICAL MEDICINE.

HORDER & V. O. REES, ARCHITECTS.

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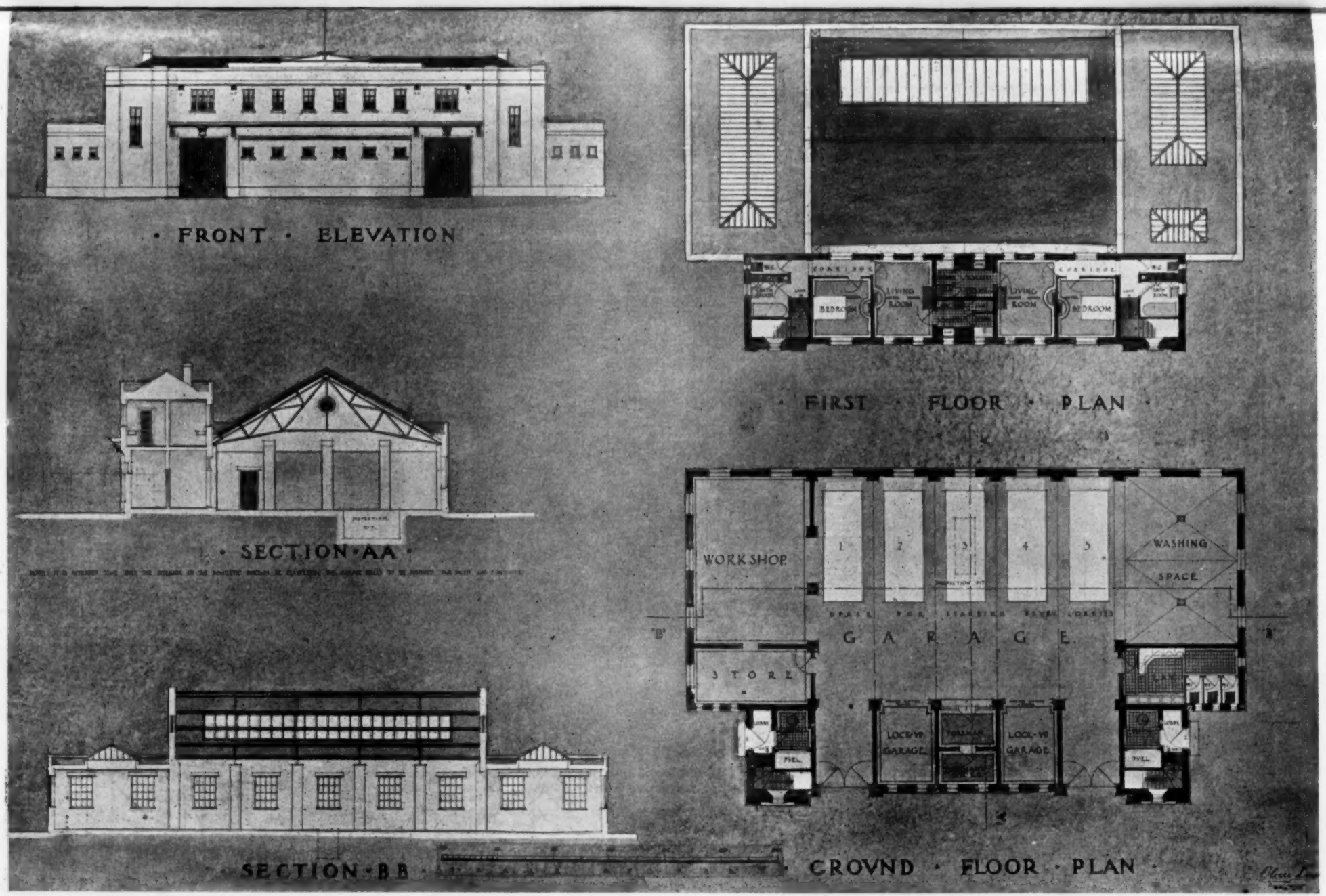

R.I.B.A. Approved Testimonies of Study: No. LXXXIV. Final Examination.

DESIGN FOR A GARAGE BY MR. OLIVER LAW.

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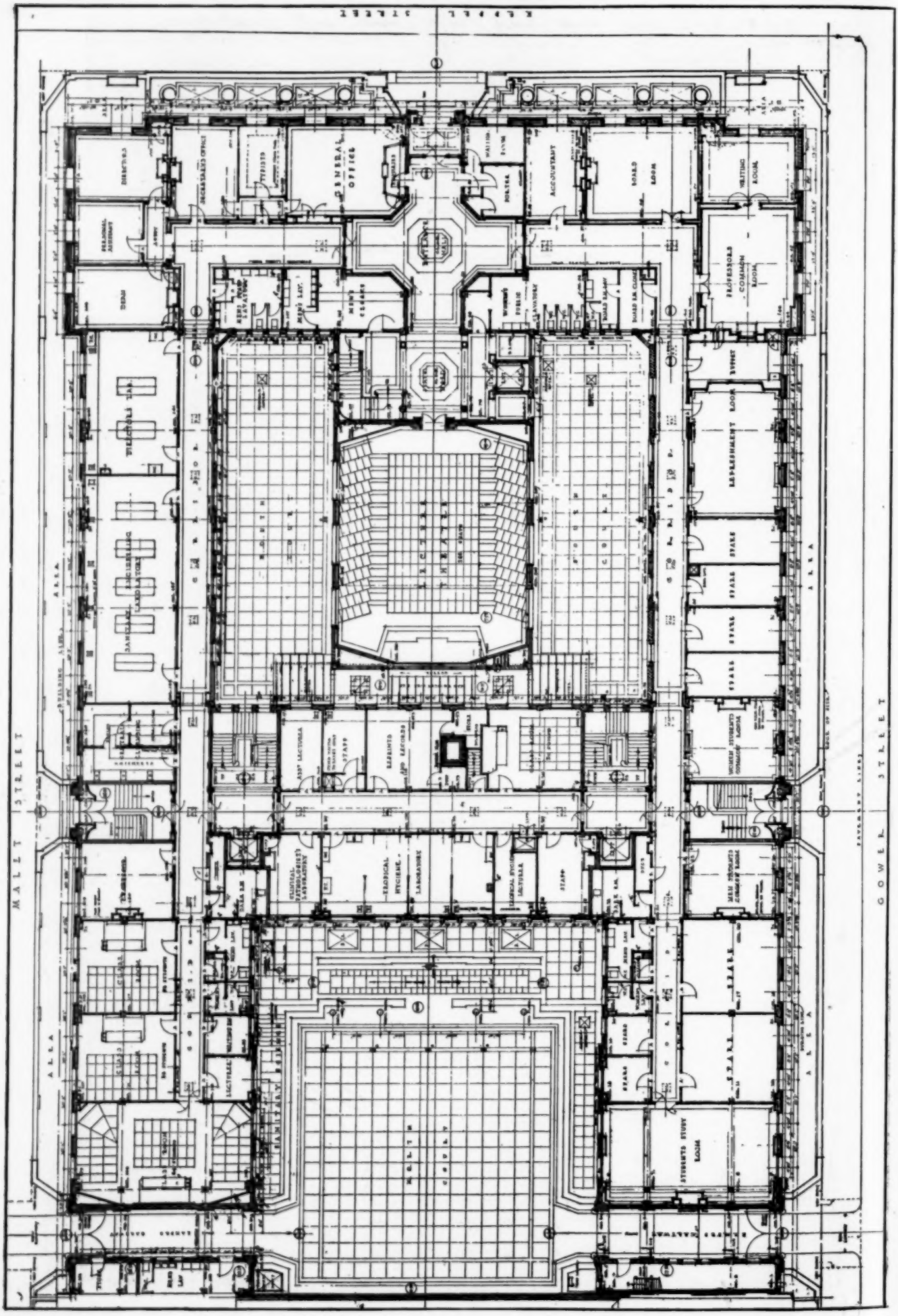
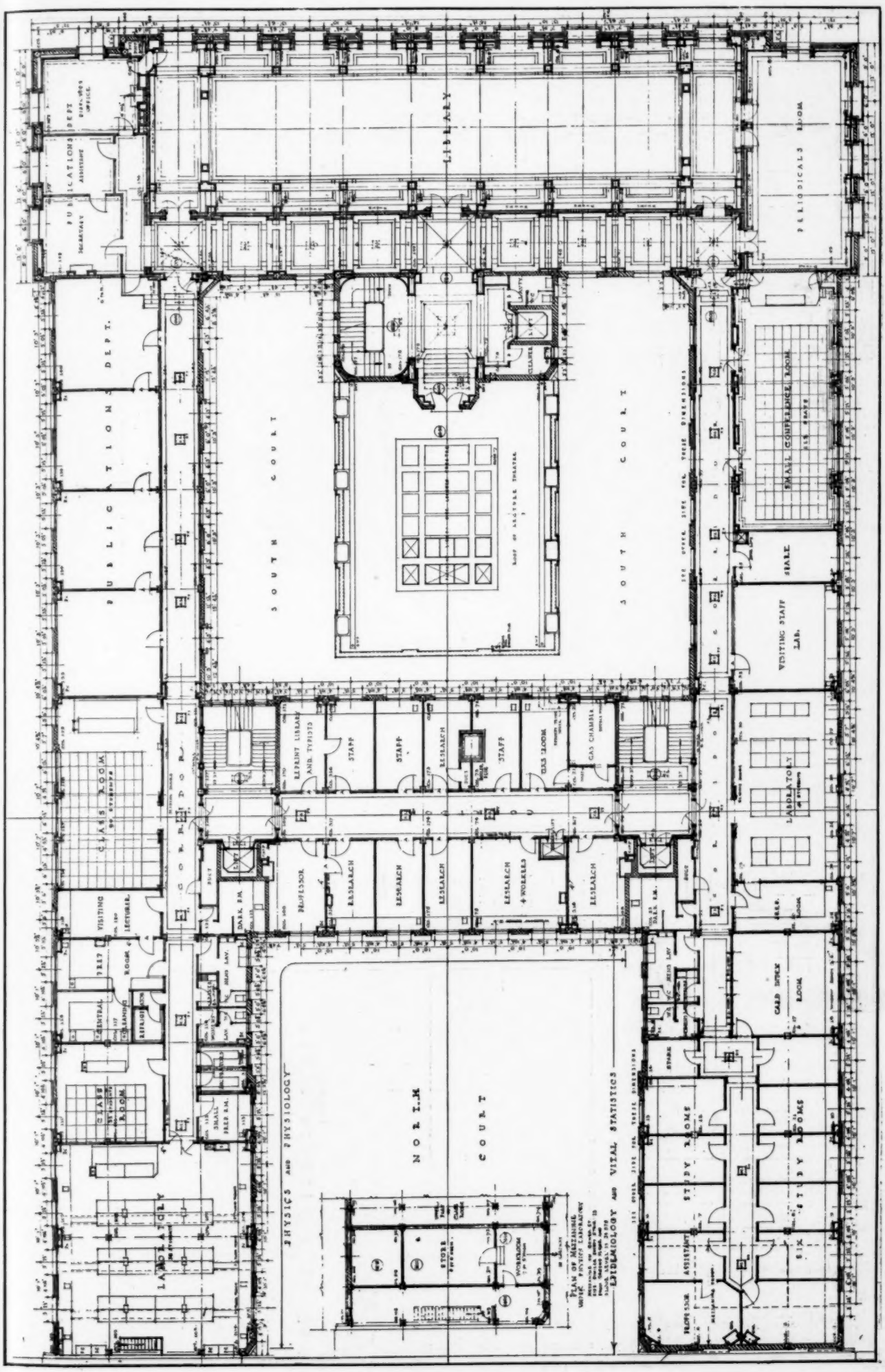


London School of Hygiene and Tropical Medicine: Ground-floor Plan.

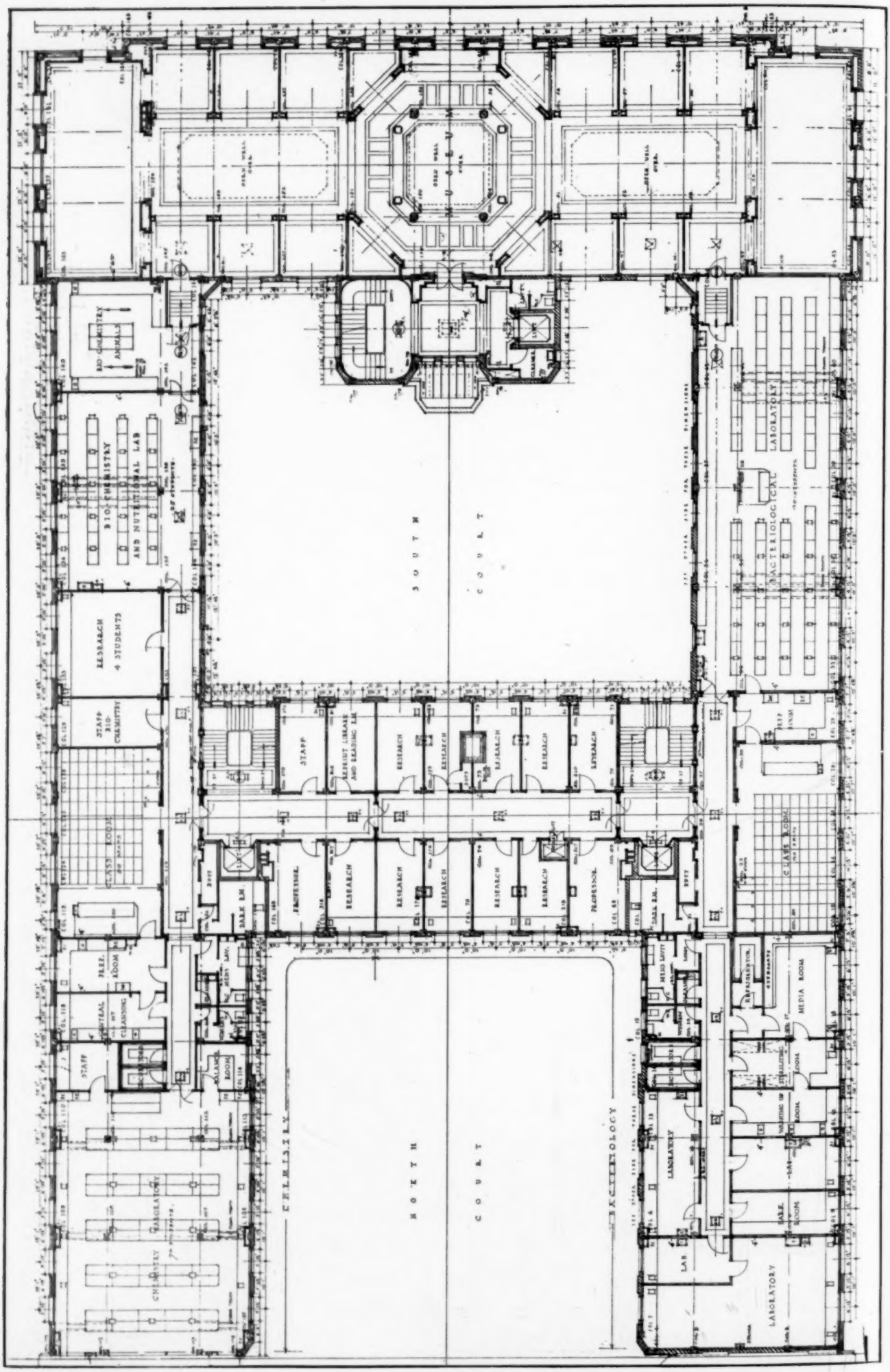
MESSRS. P. MORLEY HORDER & V. O. REES, Architects.



London School of Hygiene and Tropical Medicine: First-floor Plan.

MESSRS. P. MORLEY HORDER & V. O. REES, Architects.

MESSRS. P. MORLEY HORDER & V. O. REES, Architects.



London School of Hygiene and Tropical Medicine : Second-floor Plan.

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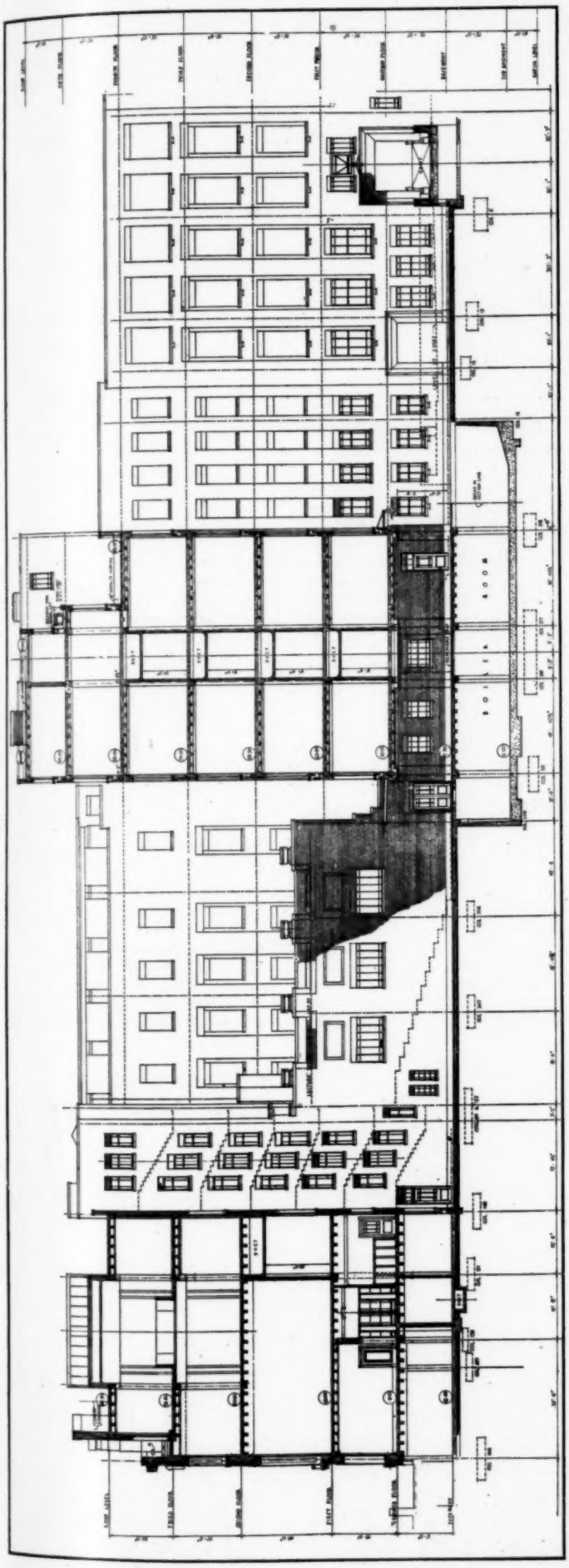
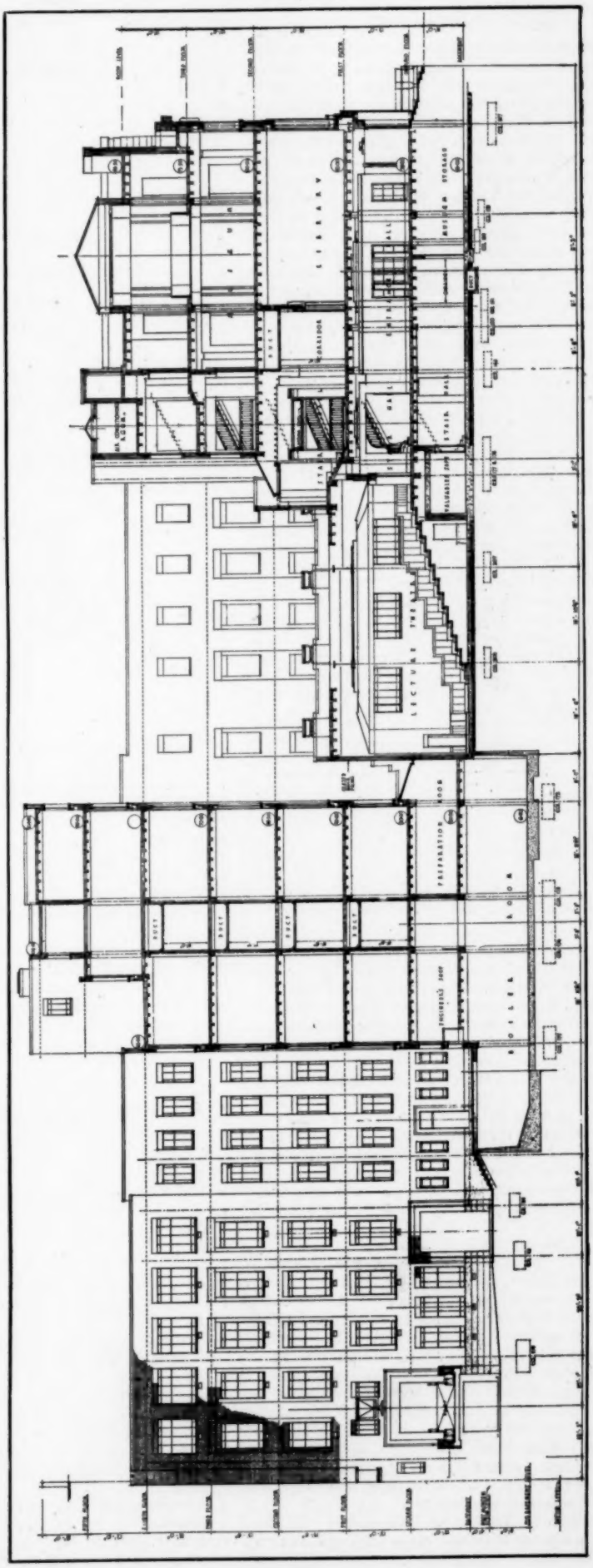




London School of Hygiene and Tropical Medicine : Sections.

MESSRS. P. MORLEY HORDER & V. O. REES, Architects.

MESSRS. P. MORLEY HORDER & V. O. REES, Architects.

SPECIFICATIONS.—XXVI

BY H. V. MILNES EMERSON, A.R.I.B.A.

COPPER TUBES—(*Continued*).

ALTHOUGH there are a number of joints on the market, a standard joint has not yet been adopted. Joints should be so constructed that they will not leak or break away with time or use. A joint that requires the tube to be sharply flanged over (*i.e.*, at right angles) where they come together is not to be recommended, the copper pipe will generally withstand the strain put upon it, but the pull remains permanently upon only a narrow lip of metal. Flanged joints should have a generous radius; they should be fitted to each other with care and not pulled up by straining the compression nuts; this last distorts the lips and leads to failure of the pipes. The joint should be of a simple pattern in order that all work necessary can be done by the man on the job with simple hand tools. The joint should be such that the bore is not narrowed in any way and it should be as smooth as possible inside. The unions should not be ugly or over-large, and the joint should be as easy to take apart as it is to erect. All joints, tees, &c., should be of high quality brass.

Copper pipe is an ornament rather than a disfigurement, and for that reason it can be exposed to view, allowing for easy accessibility and saving the cost of casings, &c. Being stronger and of less weight than lead pipe, it is more easily supported, and when annealed it can be bent in easy curves with the facility of lead, thus reducing the joints to a minimum.

Light copper pipes will resist injury under blows or shocks better than the equivalent lead pipes. The following table gives the results of tests made to reduce the area of the pipes 10 per cent. by means of a falling weight measured in foot-pounds:—

Size.	Thickness. Gauge.	Inches.	Blow to reduce area by 10 per cent. in ft.-lbs. Copper.	Lead.
½ in.	18 =	.048	15	—
....		.2	—	5.4
¾ in.	18 =	.048	18	—
....		.2	—	11
1 in.	17 =	.056	24	—
....		.21	—	17.5
1½ in.	17 =	.056	30	—
....		.3	—	28

The frictional resistance offered by copper pipes is much less than lead or iron and a copper pipe ½ in. diameter would give a better service and convey more water with the same pressure than iron or lead pipes of the same or larger bore up to ½ in. diameter. As the outside area of a copper pipe is less than lead or iron, in addition to being thinner, the loss of heat is much less when copper pipes are used for hot water.

The capacity for heat is also much less. The loss of heat in raising the temperature of water from 60 deg. to 200 deg. F. is only 237 units for copper pipe, compared with 810 and 1,930 for lead and iron respectively per 100 ft. of pipe.

	Per 100 ft. of pipe. Copper.	Lead.	Iron.
Bore in inches	½	.4	½
Outside diameter do. ..	.447	.8	.84
Weight in lbs.	18	186	120
Area of outside surface square feet	12	21	22
Loss of heat from pipe at 200 deg. B.Th. Units per hour	5,000	8,800	9,200
Tons of coal per year to supply this loss, 300 days per annum, 18 hours per day	2.0	3.5	3.7
B.Th.U's to heat up from 60 deg.F. to 200 deg.F.	237	810	1,930

Traps are made in one piece with one or two cleaning caps; or they can be obtained in two parts with a connector in the middle pipe of an *O* trap.

The following are the materials required for hot and cold water services in a parlour type of house consisting of hall, parlour, living room, scullery, three bedrooms, w.c., and bathroom. Cold water is laid on to the scullery sink, copper, bath, w.c., and cold water tank. Hot water from range boiler or gas boiler to the sink, copper and bath.

Cold Water Service.

Materials.	Internal diameter in all cases. Iron.	Lead.	Copper.
2 Stop cocks	½″	½″	½″
40 ft. pipe	½″	½″	½″
4 Elbows or bends	½″	—	½″
2 Tees	½″×½″×½″	—	½″×½″×½″
1 Tee	½″×½″×¾″	—	½″×½″×¾″
1 Tee	—	—	½″×½″×½″
35 ft. pipe	½″	½″	½″
6 Elbows or bends	½″	—	½″
1 Bib cock labelled "Cold"	½″	½″	½″
2 Bib cocks	½″	½″	½″
2 Connections for feed cistern and hot water calorifier	½″	½″	½″
2 Connections for feed cistern and w.c. cisterns	½″	½″	½″
2 Connections for overflow for feed cistern and w.c. cistern	½″	½″	½″
Overflow pipe, 8 ft.	½″	½″	½″
Feed cistern 20″×15″×18″	20 s.g.	20 s.g. Iron	Wood, copper lined 22 s.g.
W.C. flushing cistern, 2 galls.	Cast-iron	Wood, lead lined or cast iron	
5 ft. Pipe air connections to w.c. cistern	1½″ lead	1½″ lead	1½″ 17 s.g.
Running joints, wall hooks, and clips, as necessary	—	—	—

Hot Water Service.

Materials.	Internal diameter in all cases. Iron.	Lead.	Copper.
1 Back of range boiler	cast iron	cast iron	copper
1 30 gall. hot water cylinder	14 s.g.	copper	18 s.g.
1 Gas circulator, with connections	—	—	—
75 ft. Pipe	1″	¾″	¾″
8 Elbows or bends	1″	—	¾″
1 Tee	1″×1″×¾″	—	¾″×¾″×½″
1 Tee	1″×1″×½″	—	¾″×¾″×½″
1 Safety valve	¾″	¾″	¾″
4 Connections for boiler and hot water cylinder	1″	¾″	¾″
40 ft. Pipe	¾″	½″	¾″
7 Elbows or bends	¾″	—	¾″
3 Tees	¾″×¾″×½″	—	¾″×¾″×½″
2 Tees	¾″×¾″×½″	—	¾″×¾″×½″
20 ft. Pipe	½″	½″	½″
6 Elbows or bends	½″	—	½″
1 Bibcock labelled "Hot"	½″	¾″	½″
2 Bibcocks ditto	½″	½″	½″
Running joints, wall hooks and clips, as necessary	—	—	—

For a larger house containing, on the ground floor, hall, lavatory, dining room, drawing room, study, kitchen, maids' room and w.c., and on the first floor five bedrooms, bathroom and w.c., the cold water service would be to the hall lavatory basin, kitchen or scullery sink and copper, bath, lavatory basins in bathroom, and all bedrooms, all w.c.'s cisterns, and service tank for cold water supply. The hot water is supplied from an independent boiler and run to all lavatory basins, bath, sink and copper.

Cold Water Service.

Materials.	Internal diameter in all cases. Iron.	Lead.	Copper.
1 Stopcock	1″	1″	1″
1 Stopcock	¾″	¾″	¾″
50 ft. Pipe	1″	1″	1″
1 Elbow or bend	1″	—	1″
1 Elbow or bend	1″×½″	—	¾″×½″
1 Tee	1″×1″×½″	—	¾″×¾″×½″
3 Tees	1″×1″×¾″	—	¾″×¾″×¾″
1 Tee	1″×¾″×¾″	—	¾″×¾″×¾″
1 Connection to hot water cylinder	1″	¾″	¾″
1 Connection to feed cistern	1″	¾″	¾″
76 ft. Pipe	¾″	¾″	¾″
1 Connection to ball valve of feed cistern	¾″	¾″	¾″
7 Elbows or bends	¾″	—	¾″
2 Tees	¾″×¾″×¾″	—	¾″×¾″×½″
1 Tee	¾″×¾″×½″	—	¾″×¾″×½″
1 Tee	¾″×¾″×½″	—	¾″×¾″×½″
3 Bibcocks	½″	—	½″
110 ft. Pipe	½″	½″	½″
9 Elbows or bends	½″	—	½″
5 Tees	½″	—	½″×½″×½″
3 Connections to ball valve of w.c.	½″	½″	½″
7 Bibcocks	½″	½″	½″
Overflow pipe, 12 ft.	½″	½″	½″
Service tank 3 ft. × 3 ft. × 2 ft. 6 in.	18 s.g.	18 s.g. iron wood	Wood copper lined
3 W.C. cisterns, 2 galls.	Cast iron	lead lined or cast iron	
15 ft. Pipe and connections to w.c. cisterns	1½″ lead	1½″ lead	1½″ 17 s.g.
Running joints, wall hooks and clips, as necessary	—	—	—

Hot Water Service.

Materials.	Internal diameter in all cases. Iron.	Lead.	Copper.
6 ft. Pipe	1½″	1″	1″
1 Tee	1½″×¾″×1½″	—	1″×¾″×1″
2 Safety valves	¾″	¾″	¾″
100 ft. Pipe	1″	¾″	¾″
2 Connections to hot water cylinder	1″	—	¾″
7 Elbows or bends	1″	—	¾″
2 Tees	1″×1″×¾″	—	¾″×¾″×⅜″
3 Tees	1″×1″×⅜″	—	¾″×¾″×½″
75 ft. Pipe	¾″	⅝″	¾″
6 Elbows or bends	¾″	—	¾″
1 Tee	¾″×¾″×¾″	—	⅝″×⅝″×⅜″
2 Tees	¾″×¾″×⅜″	—	⅝″×⅝″×½″
3 Bibcocks labelled "Hot"	½″	½″	½″
25 ft. Pipe	½″	½″	½″
3 Elbows or bends	½″	—	½″
7 Bibcocks labelled "Hot"	½″	½″	½″
1 50 gall. hot water cylinder	14 s.g.	—	14 s.g.
1 Boiler, p.c. £ . . . and fixing and profit	—	—	—
Running joints, wall hooks and clips, as necessary	—	—	—

The Gauge Thickness and Weight of Copper Tubes.

Pounds per foot.

Internal diameter of tube	Thickness of tube S.W. Gauge. Inches.	20 ·036	19 ·040	18 ·048	17 ·056	16 ·064	15 ·072	14 ·080
	⅛″	·07	·08	·10	·12	·15	·17	·20
	¼″	·12	·14	·17	·21	·24	·28	·32
	⅜″	·18	·20	·25	·29	34	·39	·44
	½″	·23	·26	·32	·38	·44	·50	·56
	⅝″	·29	·32	·39	·46	·53	·61	·68
	¾″	·34	·38	·46	55	·63	·72	·80
	⅞″	·40	·44	·54	·63	·73	82	·92
	1″	·45	50	·61	·71	·82	·93	1·04
	1¼″		·62	·75	·88	1·02	1·15	1·29
	1½″		·74	·90	1·05	1·21	1·37	1·53
	1¾″			1·04	1·22	1·40	1·59	1·77
	2″			1·19	1·39	1·60	1·80	2·01
	2½″				1·73	1·98	2·24	2·50
	3″					2·37	2·68	2·98
	4″					3·15	3·55	3·95

Pounds per foot.

Internal diameter of tube	Thickness of tube S.W. Gauge. Inches.	13 ·092	12 ·104	11 ·116	10 ·128	9 ·144	8 ·160	7 ·176
	¼″	·38						
	⅜″	·52						
	½″	·66	·76					
	⅝″	·80	·92	1·04				
	¾″	·94	1·07	1·21				
	⅞″	1·08	1·23	1·39				
	1″	1·21	1·39	1·57	1·75			
	1¼″	1·49	1·70	1·92	2·13	2·43		
	1½″	1·77	2·02	2·27	2·52	2·86		
	1¾″	2·05	2·33	2·62	2·91	3·30		
	2″	2·33	2·65	·2·97	3·29	3·73		
	2½″	2·88	3·28	3·67	4·07	4·61	5·15	5·70
	3″	3·44	3·90	4·37	4·84	5·48	6·12	6·76
	4″	4·55	5·16	5·78	6·39	7·22	8·05	8·89

Standard Gauges for light copper tubes as per Ministry of Health Model Specification and B.E.S.A. Specification 61.

STANDARD PRACTICE.

Pressures (lbs. per square inch).

Internal diameter of tubes	Up to 50 lbs. Thickness S.W.G.	Over 50 lbs. Up to 125 lbs. Thickness S.W.G.	Over 125 lbs. Up to 200 lbs. Thickness S.W.G.
⅛″	19	19	17
¼″	18	17	16
⅜″	18	17	16
½″	18	17	15
⅝″	18	17	14
¾″	18	16	14
⅞″	18	16	14
1″	17	15	13
1¼″	17	15	12
1½″	17	15	12
1¾″	16	15	12
2″	16	15	12
2½″	16	14	10
3″	15	13	9
4″	13	11	7

Weights as previous Table.

ROYAL SANITARY INSTITUTE

THE Jubilee dinner of this Institute was held at the Hotel Cecil on Thursday evening of last week, more than 450 delegates and others being present, including Sir Henry Tanner, Mr. H. D. Searles-Wood, Mr. H. Percy Boulnois, Dr. Louis C. Parkes, Dr. H. T. Calvert (Ministry of Health), Mr. W. D. Caröe, Mr. J. W. Comben, Mr. E. A. Sandford Fawcett, Lieut.-Col. Fremantle, M.P., Mr. H. E. Stilgoe, and Mr. E. White Wallis, Secretary. The President of the Institute, the Duke of Northumberland, occupied the chair.

After the customary loyal toasts had been honoured, Dr. Charles Porter proposed the toast of "The Navy, Army and Air Force," and referred to the value of the work the Services did in spreading the principles of sanitation wherever they went.

Surgeon-Commander J. L. Priston, R.N., responded for the Navy, and Colonel H. P. W. Barrow for the Army, the latter observing that officers were trained in military hygiene, and encouraged to go in for the diplomas given by the Universities. One hundred and thirty-six officers of the R.A.M.C. held the Diploma of Public Health. The Army acknowledged its indebtedness to the Royal Sanitary Institute for the work it had done in helping to train the men of the sanitary sections during the war.

Sir Joseph Cook, High Commissioner for Australia, proposed "The Houses of Parliament," Lord Burnham and Lieut.-Col F. E. Fremantle, M.P., replying

The toast of the evening, "The Royal Sanitary Institute," was submitted, in the absence of Mr. Neville Chamberlain, by Sir John Gilmour, M.P., Secretary for Scotland, who said that it was because the Minister of Health had gained ripe experience in local administration through coming in touch with municipal affairs in a great city like Birmingham that he could approach the colossal task of improving the health and sanitation of the country. Parliament, he continued, could pass Acts of Parliament, but the putting into operation of those Acts must be done outside, and it was there that the co-operation of such a body as the Royal Sanitary Institute became so valuable.

Professor A. Bostock Hill, Chairman of the Council, responding, said in looking over some back numbers of the *Journal* of the Institute he came across a paper in which Professor Kenwood partially reconstructed the ideal City of Hygeia according to conditions operative to-day. The Institute could not yet claim to have taken part in building the ideal City of Health, but it certainly could claim to have done something in paving the roads which led to that city. The work of the Institute had improved the conditions of housing, and particularly the housing of the poorer classes. Schemes had been started for the training of health visitors, and much had been done to increase the facilities for the teaching of hygiene to school children. The work had spread to the Dominions, which in some aspects of hygiene were now ahead of us. It was with full confidence and hope that the Institute looked to the future, wherein it would find an even greater mission than in the past. He desired on behalf of the Council to acknowledge the loyal and splendid services rendered to the Institute by its staff, and especially its secretary, Mr. White Wallis, upon whom the King had been pleased to confer the distinction of O.B.E.

The toast of "The City of London" was proposed by Sir Arthur Newsholme, and Mr. Alderman and Sheriff Batho replied. Mr. E. Willis, Chairman of the Congress Committee, gave the "Delegates to the Congress," observing that seventeen foreign countries were represented at the Congress together with forty of the British Dominions. Professor Aldo Castellani responded for Italy, Dr. G. C. Strathairn for Jamaica, and Sir Thomas Hughes for the Welsh Board of Health. Dr. Andrew Balfour proposed the final toast, "The Chairman."

THE WEEK IN PARLIAMENT

WESTMINSTER, *Wednesday.*

Houses Built.

Mr. Chamberlain informed Mr. H. Williams that the total number of houses completed in England and Wales during the year ended March 31, 1926, was 173,426—106,987 with State assistance and 66,439 without State assistance.

Working Days Lost in General Strike.

Mr. C. Williams asked how many working days were lost in the housing schemes, and the drainage in connection with these schemes, under the Acts of 1923 and 1924, respectively, through men leaving work during the general strike in the Torquay area.

Sir K. Wood said that the Torquay Town Council stated that there was no stoppage on houses being erected for the Council under the 1924 Act during the general strike, but that in most cases building on houses being erected by private enterprise under the 1923 Act was stopped. It was not possible to give an exact figure as to the number of man-days lost, but it appeared that most builders had men idle for periods varying from six to sixteen days.

Overcrowding at Enfield.

Mr. Day asked the Minister of Health if his attention had been drawn to the overcrowding in the Enfield district; and would he state what action was being taken by the local authority concerned to overcome the existing housing shortage.

Mr. Chamberlain said he was aware of the need for houses in the Enfield district. The local authority had obtained his approval to a scheme for the erection of 669 houses under the Housing Act, 1923. Of this number contracts had been arranged for 563 and 221 had been completed. The local authority had also undertaken so far to pay subsidy in respect of 171 houses to be built by private enterprise.

Imports of Paints.

Sir P. Cunliffe-Lister, President of the Board of Trade, has issued the following statement showing the total quantities and declared values of the undermentioned descriptions of paints, colours and colouring matters, registered as imported into the United Kingdom during each of the years 1922 to 1926:—

A Simon de Montfort Memorial.

Sir H. Brittain asked the Under Secretary of State for the Home Department, as representing the First Commissioner of Works, whether, seeing that many eminent men of the past associated with the growth of Parliament are represented on canvas or in stone throughout the Palace of Westminster, he would take into consideration some form of memorial to Simon de Montfort.

Captain Hacking said that as Sir H. Brittain omitted to draw the attention of the Office of Works to the omission from the estimates of the necessary financial item for the erection of such a memroial, previous to the estimates receiving the approval of this House, the First Commissioner regretted that no funds were now available for the purpose desired; but if anyone was prepared to offer such a memorial, the First Commissioner would be prepared to consider its acceptance.

Women Inspectors.

Mr. Day asked the Minister of Health if he was aware that the Chertsey Rural District Council had allowed the plans of their new houses to be inspected by two women, who had made suggestions as to the most suitable type of accommodation; and would he suggest to local authorities the advisability of obtaining women's points of view when they were proceeding with their housing schemes.

Mr. Chamberlain said that in a Manual which was issued by his Department on the preparation of State-aided housing schemes it was suggested that in considering the internal arrangements of houses local authorities would no doubt obtain the co-operation and advice of competent women. He did not think it was necessary to make further representations to local authorities in the matter.

ARCHITECTS' & BUILDERS' INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

***May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or, better still, in typewriting!*—ED.**

Dry Rot.

[REPLY TO "PROBLEM," JULY 2.]

SIR,—In spite of the common belief that the pitch in pitch pine is a natural protective against all forms of rot, there is actually no timber that will lose its nature more quickly under certain conditions, such as alternating stages of wet or damp and dry. In shipbuilding it is the rule to use it only below waterline in the hull, where it is assured of uniform conditions. In the case quoted by your correspondent, it is possible that although he describes the floor as being hermetically sealed at top and bottom, there may have been voids under the floor due to the joists projecting above the concrete. It is also likely that there was incipient dry rot in the timber when laid, or that the concrete was too green at the time of laying the timber.

SHIPBUILDER.

Client and Trade Discount.

SIR,—I have a contract to erect a house, and the following words occur in the specification: "Provide . . . fittings . . . total cost not exceeding £——." "Provide the sum of £——for cupboards." "Provide the sum of £—— for sanitary goods." "Provide the sum of £—— for stoves, &c."

In neither specification nor contract are the words "nett" or "prime cost" used, and no suggestion was made at the time of entering into the contract that the above provisions were nett prime cost. My client now wishes to purchase the goods himself, through a connection in the trade, and to deduct the whole amount of the provisions from my bill. Am I not correct in contending that, as there is no statement that the provisions are nett or prime cost, I am entitled to purchase the goods selected and to take the usual trade discount? Is there any legal or arbitral decision bearing on the point?

SCOTIA.

Dwellings Near Cemeteries.

SIR,—Can you tell me whether there is any legal restriction with regard to the erection of dwelling-houses in the proximity of a cemetery or burial ground? READER.

[There appears to be no legal restriction as to the distance a dwelling-house must be built from an existing cemetery or burial ground. It is a matter entirely left to the discretion of the building owner. There is, however, a restriction as to constructing a cemetery or burial ground in proximity to a dwelling-house, for where powers are given to a company by special Act under the Cemeteries Clauses Act, 1847, by Section 10 thereof "no part of the cemetery shall be constructed nearer to any dwelling-house than the prescribed distance, or if no such distance be prescribed, two hundred yards, except with the consent in writing of the owner, lessee or occupier of such house." Under Section 2 of the Burial Act, 1906, the prescribed distance above referred to is now one hundred yards. The distances are measured from the walls of the dwelling-house itself, not from the curtilage.—ED.]

Windmill Pumps.

[REPLY TO "AVERAGE," JULY 2.]

SIR,—The amount of lift required to be given to the water is the main issue as to the size of windmill required. The writer, as a result of some study of wind motors, can give a few guiding principles. The ordinary reciprocating windmill pump requires about a 10 or 12 mile per hour wind to run it. A mill, to give an average of 120 gallons per hour, requires to be able to pump at least five times that quantity per hour to make up for "no wind" periods. If your correspondent will communicate with the writer, he can see a design embodying the following: Low first cost; machine not so large as the ordinary one, and which will work in a wind at a lower velocity than the reciprocating type.

ENGINEER.

Damp House.

SIR,—I should be obliged if you could give me any information or help in connection with a damp house with which I am dealing. The circumstances are as follows:—

(1) The house is built on clay.

(2) It is built of brick, has a damp course, an abundance of ventilation under floors, and

	1922.	1923*.	1924.	1925.
	QUANTITIES.			
	Tons.	Tons.	Tons.	Tons.
Painters' Colours and Materials†	63,354	77,168	86,900	104,325
Extracts for dyeing (cochineal, cutch, fustic, &c.)	7,393	6,065	7,538	6,176
Indigo, natural	65	37	42	11
Finished dyestuffs obtained from Coal Tar (alizarine, synthetic indigo, &c.)	2,880	2,808	3,541	1,981
Intermediate Coal Tar Products used in the manufacture of dyes (including Aniline oil and salt and phenyl-glycine)	2	68	32	66
Dyewoods (logwood, fustic, &c.)	4,376	1,769	2,218	1,205
Miscellaneous dyeing substances	522	824	894	855
	DECLARED VALUES.			
	£	£	£	£
Painters' Colours and Materials†	1,300,593	1,667,152	1,728,850	1,923,874
Extracts for dyeing (cochineal, cutch, fustic, &c.)	548,991	380,327	376,640	282,204
Indigo, natural	45,041	22,429	21,270	6,426
Finished dyestuffs obtained from Coal Tar (alizarine synthetic indigo, &c.)	1,326,174	1,004,482	1,335,493	646,903
Intermediate Coal Tar Products used in the manufacture of dyes (including Aniline oil and salt and phenyl-glycine)	917	17,062	8,587	12,705
Dyewoods (logwood, fustic, &c.)	64,709	24,551	26,771	16,173
Miscellaneous dyeing substances	12,008	27,261	62,999	46,240

* From April 1, 1923, the above particulars included the imports (if any) into Great Britain and Northern Ireland from the Irish Free State. From the same date imports into the Irish Free State were excluded.

† Including materials commonly, but not exclusively, used as painters' materials.

the site is concreted all over. The area under the floors is, with one exception, perfectly dry. The walls under floors are quite dry in all cases.

(3) There have been indications of dry rot in different parts of the building, which was erected in 1919, and the indications are that the wood was affected by tainted timber.

(4) The exception referred to under (2) applies to a portion of the building which was excavated for the purpose of a cellar. This idea was abandoned when the cellar was half excavated, and concreted over. It is in this portion that there is occasionally standing water, which varies under climatic conditions.

I am not particularly concerned with the dry rot, which, as I have previously stated, I presume to be caused by the tainted timber, but in the remainder of the house effects of damp are apparent in practically every position: In cupboard at side of chimney-breast in kitchen; in the cupboard of a washstand which is clear of the wall and on castors; in wardrobes; even on materials left on the floor and uncovered.

The walls do not show any signs of damp, the distempering having stood quite well, and there are no signs of damp at floor level. In no case is the outside earth above damp-course. The effect, which is primarily shown by a mouldy deposit, is apparent at all seasons of the year and becomes effective within three weeks or a month of the deposit having been removed. The owners have an abundance of fires and on all suitable occasions have the windows open.

I cannot suggest any possible cause, but I should appreciate advice on:—

(1) Any particular symptoms to look for in order to locate any particular defect.

(2) Whether the effect of an underground water-course would be similar to that described above.

(3) Whether the fact that dry rot is in evidence in the building would be a sufficient cause for the present trouble.

(4) Any advice on this point which would arise in an investigation.

Geo. H. Shipley.

"THE BUILDER" CONSTRUCTIONAL PROBLEM COMPETITION

This competition is limited to students in architecture and building classes or schools, assistants who have not passed the Final of the R.I.B.A., and others engaged in architecture or building, not over 25 years of age. A prize of £1 will be awarded each week for a satisfactory solution. Drawings to be on paper, tracing paper or linen not exceeding 30 in. by 22 in. (Imperial size), and should be in ink, with bold lines and printing, as the drawings, if reproduced, are much reduced in size. The drawings can be sent in a large envelope or rolled. Competitors must put their name and address on each drawing. Those who wish to have their drawings, &c., returned must enclose a stamped and addressed adhesive label.

Answers, addressed to the Editor and marked "Problem 26," to be sent in not later than first post, July 26. The Editor's decision to be final.

AWARD FOR PROBLEM 23.

A new bay window is to be 12 ft. wide; equal to the width of the two existing windows and central pier. Provision has to be made to carry the brickwork over, which can be accomplished by the aid of one or two needles (preferably two) to carry the centre pier according to the condition of the brickwork. Needles to support the brickwork under the window cills would not be necessary; the weight at these points is small and brickwork will generally hold up without strutting.

Some competitors have shown raking shores, others have shown two needles not under the centre pier but about 6 to 12 in. from the line of jamb next to pier. If two needles are employed, the pier being 4 ft. wide, the width from outside to outside of needles should be the same.

The prize of £1 has been awarded to Mr. L. B. Smith, of Lordship-road, N.16, a first-year student at the Northern Polytechnic. The shoring and strutting is sound, but the following details in the construction of the bay window are incorrect: the outlet pipe should have a small cesspool, the sashes appear to be fixed and the R.S.J.'s are too heavy.

Mr. S. D. Bowman submits a good drawing, but he has made no provision for carrying away the water from the roof of the bay. The corner mullions out of the solid are expensive and likely to shake, whilst the separators between the R.S.J. are unnecessary. Mr. Bowman is one of the competitors who employ one needle for carrying the pier.

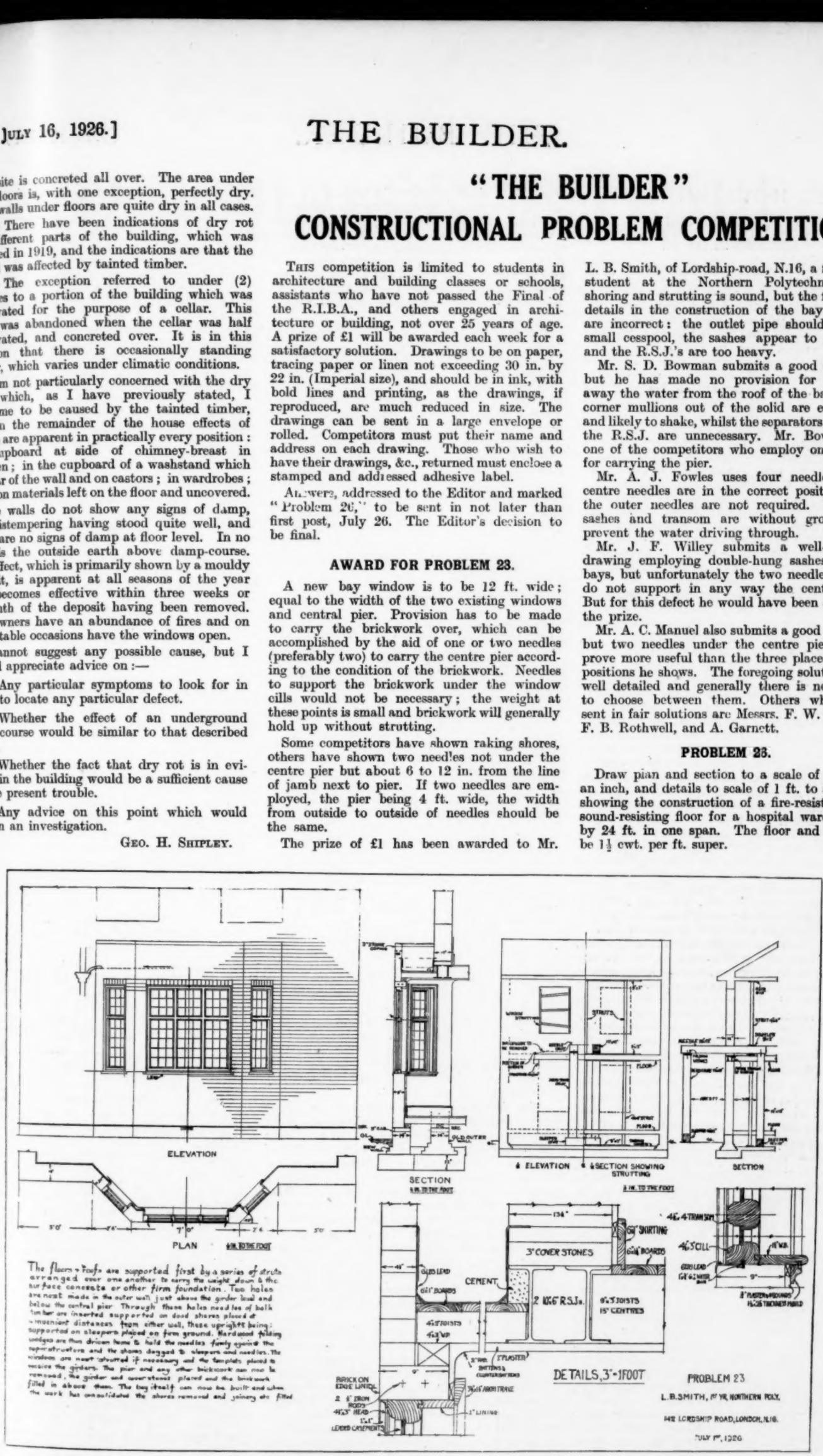
Mr. A. J. Fowles uses four needles. The centre needles are in the correct position, but the outer needles are not required. His cill, sashes and transom are without grooves to prevent the water driving through.

Mr. J. F. Willey submits a well-detailed drawing employing double-hung sashes to the bays, but unfortunately the two needles shown do not support in any way the centre pier. But for this defect he would have been awarded the prize.

Mr. A. C. Manuel also submits a good drawing but two needles under the centre pier would prove more useful than the three placed in the positions he shows. The foregoing solutions are well detailed and generally there is not much to choose between them. Others who have sent in fair solutions are Messrs. F. W. Deiters, F. B. Rothwell, and A. Garnett.

PROBLEM 23.

Draw plan and section to a scale of 4 ft. to an inch, and details to scale of 1 ft. to an inch, showing the construction of a fire-resisting and sound-resisting floor for a hospital ward 50 ft. by 24 ft. in one span. The floor and load to be 1½ cwt. per ft. super.



Winning Design, Problem 23 By Mr. L. B. Smith.

THE HOUSING ACTS

1919 AND 1923

SECTIONS 28 and 10.

THE case Southwark Borough Council *v.* Cook, which was reported in our Law Reports, April 30 last, decides a point which has been open to doubt since the passing of the Housing Act, 1923. In that case the local authority had served notices under section 28 of the Housing Act, 1919, as amended by the Housing Act, 1923, calling upon the owner of certain premises to do the works necessary to make them fit for human habitation, and on default on his part had executed the works themselves. When they took proceedings to recover the expenses so incurred the owner, before the magistrates, took the point that the time allowed in the notices was unreasonable and therefore the notices were invalid. The notices had been served before the Housing Act, 1923, came into force, but the works had been executed after that Act became operative. A Divisional Court held that section 10 of the Act of 1923 provided that the only method of questioning the notice was by appeal to the Minister of Health, and this being an enactment relating to procedure the provision in the section was retrospective.

There has been much litigation to determine the effect of section 28 of the Housing Act, 1919, the history of which may be briefly stated as follows:—Section 15 of the Housing Act, 1909, which dealt with such orders, by subsection (6) gave an appeal to the Local Government Board (now the Ministry of Health), but this section was amplified by section 28 of the Act of 1919, and in Rex *v.* Minister of Health *ex parte* Rush (1922, 2 K.B. 28; *The Builder*, July 21, 1922) it was contended that the latter Act took away the right of appeal to the Minister and substituted a more limited appeal merely relating to the question whether under the proviso to subsection (1) the house was capable of being made fit for human habitation without reconstruction. In that case it was held that section 28 of the Act of 1919 did not repeal section 15 subsection (6) of the Act of 1909 as regards the appeal to the Minister of Health, but added an appeal in relation to the question of reconstruction.

Next came the case Ryall *v.* Hart (1923, 2 K.B. 464; *The Builder*, May 18, 1923), in which it was held by a Divisional Court that despite the right of appeal to the Minister of Health an owner was entitled before the justices, in the summary proceedings to recover the expenses incurred by the local authority, to raise the question as to reasonable notice. The Lord Chief Justice in that case pointed out that if it was the intention of the Legislature not merely to provide an appeal to a Government Department, but also to prevent that question being raised at any other time or by any other method it would have expressed that intention in clear terms. This case was followed in Adams *v.* Tuer (*Weekly Notes*, 1923, 278; *The Builder*, February 1, 1924), where the owner was contending that the charge for labour was excessive, that all the work charged for was not done and that some of the work done was unnecessary.

Such was the law when the Housing Act, 1923, came into operation, which, by section 10 subsection (1) repealed subsections (3) to (6) of section 15 of the Housing Act, 1909, and introduced certain modifications into section 28 of the Housing Act, 1919. By paragraph (*a*) the notice given by a local authority under that section (section 28) shall specify what works are to be executed as being necessary to make the house fit for human habitation and introduces certain provisions as to the persons to be served with notice, and then paragraph (*b*) provides, "The owner may appeal to the Minister against any notice requiring him to execute works under that section (section 28) and against any demand for recovery of expenses from him under that section or an order made by the local authority under that section with respect to those expenses by giving notice of appeal to the Minister within 21 days after the notice is received or the demand or order is made (as the case may be), or such longer time as the Minister may allow, and no proceedings shall be taken in respect of any notice, demand or order whilst the appeal is pending. Provided that no appeal against such a demand or order shall lie if and so far as the appeal raises any question which might have been raised on an appeal against the notice itself and subject to such appeal the notice, demand or order shall be binding and conclusive as to any matters which could have been raised on such appeal."

The case reported in our Law Reports on April 30 is the first to be delivered on this section, and it appears that the Court held that the above cases were no longer law as regards the double appeal, and that under section 28 the only appeal is now to the Minister of Health. In other words, the Court appears to have held that the Legislature has now supplied that provision which the Lord Chief Justice in Ryall *v.* Hart said was missing. It appears, therefore, that any question connected with the notice can only be questioned by appeal to the Minister, but it remains to be seen whether on the affinity of cases decided in relation to streets under the Public Health Act, 1875, this section covers an objection to the jurisdiction which goes to the root of the whole matter as involving questions of jurisdiction.

THE HOUSING POSITION

ON a Vote of £18,117,048 for the salaries and expenses of the Ministry of Health, etc., Mr. Chamberlain said that when he first became Minister of Health in 1923 the housing problem was so acute and so pressing that it practically excluded the consideration of any of the other activities of the Ministry of Health. That was an unnatural state of affairs, and he was very glad indeed to be able to report that the improvement had been such that, if they had not yet arrived at a solution of the housing problem, they were well on the way to a solution, and housing was taking a much more normal perspective in affairs. In the five years which preceded the war the total average number of houses of all classes completed per year was 61,000 in England and Wales. In the twelve months ending March 31, the corresponding figure was 173,000, of which about 153,700 might be taken as working-class houses. The rate of progress had not fallen off, but still continued to increase. The number of houses completed during the first five months of the present administration was 6,900, and for the last five months the figure had increased to 9,900 per month. During the last two months 21,000 houses had been completed. It would be seen, therefore, that the rate at which they were cutting into the arrears of housing was still increasing and that the general rate of the building of houses was eminently satisfactory.

The housing grants amounted to about £8,500,000, of which about £370,000 was given for houses built under the 1924 Act; £750 in connection with houses built under the Act of 1923; and no less than £7,320,000 was due to the 1919 Act. Whereas the Exchequer liability in regard to houses under the 1923 Act was £6 a house per year for 20 years, and under the 1924 Act £9 a house per year for 40 years, under the Addison scheme it was £41 a house per year for 60 years. Long after many of those now in the House would be in their graves, the estimates of the Ministry of Health would be burdened by the Addison scheme to the extent of one-third of the expenditure of the Department. This showed how the liability in respect of housing was mounting up at an alarming rate, and accordingly rendered it extremely necessary to see that the country was getting full value for its money. Under the 1924 Act the situation was to come under review next October. The fact that this review was looming on the horizon was bound to give rise to some uncertainty in the minds of local authorities, contractors, and builders, who were trying to keep up a continuity of house building, and with a view to removing that uncertainty as to what was going to happen, conversations were now going on between himself and representatives of the local authorities and others.

By means of experiments carried on by a Committee under the direction of the Scientific and Industrial Research Department at Watford, simple tests could now be applied to building materials by which some certainty could be obtained as to how the materials would behave under given conditions. It was hoped that this would lead to considerable savings in house building by the avoidance of the use of unsuitable materials which, after use, were found to be subject to decay. Under the facilities for the purchase of houses provided by the 1923 Act, no less than £29,000,000 had been sanctioned for advances of this kind. Thus an entirely new category of house-owners had come into being.

Turning to town-planning, Mr. Chamberlain said that the importance of town-planning was becoming more and more realised and, on the whole, was being dealt with satisfactorily. To-day, over 2,000,000 acres were the subject of town-planning, and he attached considerable importance to regional planning, which covered an area of more than one local authority. There were 36 of these regional schemes in operation, covering 550 authorities, and a population of 17,500,000. When one realised that we were passing through a period in which very rapid development was going on, not only in house-building but in road-building, it must be realised that unless we could get some sort of control over this development we were likely to see some of the characteristics of our countryside to which we attached most value disappearing, and he welcomed these regional schemes which covered vast areas and which would interfere very little with legitimate development, but which exercised such control that the country was not cut to pieces. He praised particularly the Manchester scheme, and also referred to the interesting scheme which was under consideration in connection with the East Kent coalfield, which provided for the development of shopping and residential areas away from the coalpits, but nevertheless at such a distance that they could readily be served. In this way it was hoped to prevent the formation of pit villages.

Houses Approved.

Mr. Chamberlain informed Sir G. Collins that the number of houses in England and Wales authorised on June 30, 1926, under the Act of 1923 was 303,008, and under the Act of 1924, 137,273, the capitalised value of the annual subsidies payable by the Government if the houses were duly completed being £22,725,600 and £21,686,875, respectively.

Building Trade Wages.

A conference of executives of the unions affiliated to the National Federation of Building Trade Operatives, which was held in London this week, approved of the draft of a proposed national wages and conditions agreement, which has been negotiated with the employers. The main feature of the agreement is that existing standard rates are to be stabilised until August 1 of next year. All existing applications for the regrading of towns are to be heard and decided, but further applications for regrading are to be suspended until October, 1927. Some time ago the employers made proposals which would have involved a departure from the principle of a uniform rate for all crafts. Strong objections were raised by the Operatives' Federation, and it is understood that the differential rates have now been withdrawn. It was announced at the close of the conference that the Operatives' Federation is prepared to enter into an agreement with the National Federation of Building Trade Employers in the terms of the proposed agreement, the text of which is to be published.

At a meeting of the Employers' Federation at Leamington on Wednesday it was decided to enter into an agreement on the lines submitted by the Operatives' Federation.

THE BUILDING TRADE

COST OF BUILDING IN THE FAR EAST

By GEO. W. GREY, F.S.I.

It is so often stated that owing to the low wages of labourers and artisans, costs of building in the Far East should be automatically cheaper. The term "Far East" covers a very wide field and many races, and for one person to do more than speak of costs in a general manner would be impossible. The amount paid for labour varies in different parts, and in the same area with different races, and with different employers; but it can be stated that the amount of pay averages but little more per day than the amount paid per hour to the labourer and mechanic in Great Britain. In spite of this, it is extremely doubtful if the finished building, whether residence, commercial factory or warehouse, is less.

The industry of the workers of the same race varies considerably. Complaints can be repeatedly heard of the laziness of the Cantonese in South China, while the Chinese immigrant to the Straits Settlements, with his long hours and hard work, has been spoken of as over industrious, and with him it is said to be so often a case of more haste less speed. The economic values have been put at:—European labour (white), 100; Korean, 75; Chinese, 65; Japanese, 55; Portuguese, 45; Filippino, 35; Malays, 15. A Straits paper, in remarking upon this valuation, states: "It may be difficult for some to believe that it really takes six Malays to do the work of one European, but those who have had experience of both will agree that taken by average the figures quoted are just about correct."

Good-class buildings with elaborate plaster cornices, heavy moulding to joinery, etc., are plentiful, yet seldom can be found showing workmanship of high skill as measured with European eyes. If good workmanship is required—that is, the results which can be given by a skilled European workman, whether a "jack-plane job" or one of high finish—it is doubtful if it is even obtainable in the East.

The tools of the artisan are very few and very primitive. Chinese fitting shops have given wonderful results in counter cases, considering that the lightest tool used as a hammer was an axe; and while it is possible that a European mechanic would not have been as good with only the tools used by these Chinese at his disposal, the results are not to be compared with those turned out by English shop-fitting firms. In spite of the low rates paid, machinery exists, and the motor lorry competes with the bullock cart and with trucks drawn by women. Concrete is mostly mixed by machinery and hoisted by power, and there are machine joinery works. It might be claimed that the reason for the use of machinery is not that it is a cost reducer, but it gives better and more expeditious results. Whether these are the reasons or not, the cost has to be paid for as machines, and these machines, being manufactured in Europe or America, do not normally cost less than in their place of manufacture, and power to run them is not normally more cheaply obtained in the East than in Great Britain or the United States. It would appear, when speaking of the low amounts paid to native labour, to be forgotten that a large proportion of a building consists of steel, ironmongery, sanitary ware, piping, electrical ware, etc., which are mostly of European or American manufacture; even English drain pipes are met with in South China, and English Portland cement is being used in the Straits Settlements.

Costs are high owing to waste. Materials are largely carried in baskets, and with fine materials, such as sand, a trail of the material is left which would appear to be sufficient to add an appreciable percentage to its cost. With bricks there is always a large amount of waste, which occurs from several causes. Often the contractor for the labour to lay the bricks does not supply the materials, with the result that the contractor for the labour has no interest in avoiding waste. A trowel of the pattern with which a brick can be cut is seldom seen, the cutting being done with a tool similar to a bricklayer's bolster, and a hammer similar to a club hammer, and with bricks of poor quality great waste results. With timber, reduction of scantling, which would be done with a saw, either hand or power, leaving a piece of value, is often executed by cutting away the surplus with an axe. Paint is put on by dipping a rag into the paint and rubbing the rag over the work, sometimes leaving it at this, and sometimes finishing off with a brush.

There is also waste in labour from lack of organisation, which would appear largely to arise from the fact of the low rates of pay. A gang of men or women coolies will travel with the lorry for purposes of loading and unloading, and while the actual cost of their travelling time as an item will be small, as a percentage on the cost of loading and unloading it becomes considerable. Waste exists in the form of lack of imagination with the native, he so often being unable to visualise from a drawing anything which is unfamiliar; and to this is added the language difficulty with either written or verbal instruction, resulting in a considerable amount of the building being erected by trial and error.

European supervision on the works is very costly. European clerks of works and general foremen, and European supervision of plumbing and fitting are not unusual, and are not confined to European firms only, some Chinese contractors in the Straits having both European foremen and English plumbers.

The cost of rent and food is generally above that of Europe, and the standard of a European's requirements is generally higher in the East than at home, and therefore a correspondingly high salary has to be paid. There are clerks of works, general foremen, and plumbing foremen receiving salaries of over £950 per annum, and while salaries such as these may not normally be paid, those paying these salaries do not claim to be payers of high salaries, nor do the men receiving them claim to have exceptional abilities. With men brought from Europe or America there is also to be added the time on the voyage, delay in commencement of work on arrival, and delay in departure; and as suitable single men are not always obtainable, there may be a wife and children for whom passage has to be also provided. When bringing men out the risk of failure must also be allowed for.

While speed may compare favourably with Europe in certain parts, in others work is carried on very slowly, and if the cost of ground rents and interest on value of work partly completed is neglected the cost of supervision becomes high owing to this length of time. How far cost is influenced by illicit receipts in the form of squeeze, pilfering by workmen, bribery to those having supervision or who purchase materials, it is difficult to say. European contractors have stated that in estimating, an allowance has to be made for pilfering. It is often claimed that whatever amounts are paid in wages to certain races, these latter cannot resist stealing; and this defect of character is said to have been aggravated by the cost of rice in South China having recently risen in greater proportion than the wages. While there are many in the East not open to "cumshaw," bribery unquestionably exists, and is not confined to any particular race, business, or profession.

TRADE UNION CONTRIBUTIONS AND TRADE

At a time when this country is hard set to maintain what is termed the "standard of living" of the employees, and yet to meet the keenest foreign competiton that has ever been experienced, some observations made by Mr. Naylor at the annual council meeting of the General Federation of Trade Unions are of interest. Speaking of the general strike, Mr. Naylor said it had shown the Unions in some cases the advisability of looking into the question of their contributions, for although the strike lasted but nine days, more than one Union found itself stranded in regard to finance. Speaking of his own Union, the London Society of Compositors, Mr. Naylor stated that the members were paying a minimum of 4s. 9d. weekly, in addition to a 6d. levy as a reserve against emergencies, and over and above that, 3d. on every hour's overtime. There can, of course, be no objection to members paying any contributions they please, but Mr. Naylor is reported to have gone on to say: "It is not the members who are paying these high contributions, but the employers through the higher wages paid, and when we meet the employers to ask them for more wages, we refer to the high contributions which our members are paying and the necessity of more wages to cover them. The employers say, 'But we are paying your contributions.' We reply it is not the employers, but the consumers. The employer puts up the price of his articles and the worker gets the higher wage, and consequently in the end the worker is much better off." This naive statement seems to savour of seething two kids in their mother's milk. The employer, in the first instance, pays the contribution to enable the workmen to strike, and the liability is passed on to the public in order, as occurred in the general strike, that they may be deprived of their Press, but the position ceases to be funny when it is applied to articles subject to foreign competition. No one desires to see the necessary standard of living lowered, and it is difficult to maintain that, if not impossible, as competition increases; no one would willingly see the benefit funds of the Trade Unions diminished and the members deprived of sickness and death benefits, but a tax on commodities to maintain strikes may come as a novelty to consumers in these very hard times, and not meet with the same sympathy. Fortunately, all Unions do not appear to adopt so lavish a scale, for where a trade is an unprotected trade a contribution of 4s. 9d. is quite sufficient to put us out of a foreign market altogether, and therefore to increase unemployment on a large scale.

Conference with Teachers of Building.

On Wednesday, July 21, at 2.30 p.m., in the R.I.B.A. Galleries, the Schools Committee of the Board of Architectural Education will hold a Conference with the representative teachers of building who are in London on a course arranged by H.M. Board of Education. A paper will be read on "The Elements of Design in the Teaching of Building Construction," by Professor A. E. Richardson, F.R.I.B.A. A discussion will follow. There will be an exhibition of architects' working drawings in the galleries. It is hoped that the Conference will be largely attended and that there will be a free interchange of views. No tickets of admission are required.

Grosvenor House Site.

The interest of the executors of the late Lord Leverhulme in the Grosvenor House site has been disposed of to a London syndicate, for whom Messrs. Wimperis, Simpson & Guthrie are preparing plans for the new buildings. It is proposed that the site shall be developed so as to provide flats, with shops under, and squash racket courts.

LAW REPORT

KING'S BENCH DIVISION.

(Mr. Justice Horridge and a Special Jury.)

BUILDERS' LIBEL ACTION AND ALLEGED WAGE RATE DEFAULT.

Bovis, Ltd. v. Thorne and Others.

IN this case, which commenced before Mr. Justice Horridge and a special jury on July 8 and concluded on July 13, Messrs. Bovis, Ltd., builders and contractors, of Upper Berkeley-street, London, W., claimed from the defendants, Mr. F. Thorne, president of the London Master Builders' Association, and other members and officers of the Association, damages for alleged libel upon the ground that the defendants, on behalf of the Association, had published circular and other documents alleging that the plaintiffs were in "wage rate default," thereby imputing that they had paid wages in excess of the standard rate.

The defendants denied publication of libel and defamatory meaning, and pleaded privilege and justification.

Sir John Simon, K.C., Mr. B. A. Willes and Mr. L. H. Gluckstein (instructed by Messrs. Bartlett & Gluckstein) appeared for the plaintiffs; and Mr. Stuart Bevan, K.C., Mr. Jowitt, K.C., Mr. R. H. Chappell, and Mr. G. J. Rimmer (instructed by Messrs. Kenwith Brown, Baker & Baker) for the defendants.

Sir John Simon, in opening the plaintiff's case said they had been persistently and grossly libelled by the seven defendants who formed the executive of the London Master Builders' Association. The plaintiffs were comparatively new comers in London, and had been extremely successful, which was perhaps the reason the older firms represented by the defendants did not altogether welcome them. What the defendants had done was to persistently broadcast the statement that Bovis, Ltd., were in "wage rate default." A defaulter was a person who had failed to meet his obligations and had broken his promises and bargains. In that sense Bovis, Ltd., were not wage rate defaulters. Difficulty had arisen in the London building trade owing to lack of labour, and because some firms paid more than the standard rate of wages. While the plaintiff company had been singled out to be libelled, other persons, members of the Association, colleagues and friends of the defendants, had never been denounced. The defendants tried to give to the word "defaulter" some sort of dictionary meaning, and they said they only meant that Bovis, Ltd., were not willing to sign a document under which they were to be bound to do what the Association told them to do in any trade dispute. That was quite true. Bovis, Ltd., had not been prepared to put the whole conduct of their business into the hands of the Association as far as regarded their relations with labour. The libels had been published with a desire maliciously to injure Bovis, Ltd. Bovis, Ltd., had been members of the Association until October, 1923, but they then resigned as they thought the Association was not acting impartially as between members of the Association when a firm who had sent in the lowest tender for a job did not get the contract. They complained that they were not getting fair play and that the Association was not doing its best to stop the makers of lowest tenders from being passed over. Since October, 1923, Bovis, Ltd., had not been members of the Association, and owed no obligation to it. Up to the time of the resignation Bovis, Ltd., had had no difficulty in getting permits to work overtime from a joint body consisting of members of the Association and representatives of the workpeople, but after that date they could not get permits at all. In July and August, 1924, a stoppage in the building trade took place throughout the country. The men struck for higher wages, and the employers locked the men out and demanded lower wages. Mr. Gluckstein, one of the three main directors of Bovis, Ltd., took the view that if one could secure adequate output, high wages, which were in effect a bonus on output, were good for the industry and the employers. He therefore gave fair notice that he was going to restart work and pay one penny an hour in addition to the previously existing wages. When the strike was settled the men got an advance in wages of one halfpenny an hour. In October, 1924, two of the defendants wrote to Sir Edwin Cooper, the architect of the new Lloyds' buildings in the City of London, asking for an assurance that when he called for tenders for the building, he would not invite tenders from firms who were not members of the Association, and who were therefore not bound to adhere to agreements made by the Association. Similar letters were sent to Sir Aston Webb and other persons, and there was obviously a concerted movement on behalf of the Association to put Bovis, Ltd., and other firms who were outside of the Association, out of business. In November, 1924, the Association invented a machine for attracting firms which were not members of the Association. Some elaborate by-laws were drawn up, one of the objects being to get firms to sign a form known as "Form A." The signatories to that document agreed to pay the standard rate of wages and to carry out the directions of the Association with regard to all matters relating to trade disputes. Because they could not get Bovis, Ltd., to sign that form they broadcast the statement that Bovis, Ltd., were in "wage rate default." In fact, when the libels were published Bovis, Ltd., were paying the standard rates and no more. Members of the Association—some of them high in its councils—also refused to sign Form "A" and other members paid more than the standard wages, but the Association never circulated a statement that any of its members were in "wage rate default." If the plaintiffs had signed Form "A" they would have bound themselves to submit in all matters in connection with their dealings with labour to the directions of the Association. As the plaintiffs did not sign Form "A" they were sent Form "B," which notified them that unless Form "A" was signed and returned within seven days—as Messrs. Bovis were believed to be paying wages over the standard rates—they would be deemed to be a firm in "wage rate default," and the Council would take such steps as they were empowered to take. Although the plaintiffs were given the seven days' grace, within that period they found Mr. Thorne, the president of the Association, writing to the architect to a London municipality about to erect a clinic, saying that he would be prepared to tender for the job providing that tenders were not invited from firms posted by the Association as being in "wage rate default," and he enclosed a list of names of those firms, including that of the plaintiffs. The first of the alleged libels, said counsel, was dated April 8, 1925, and was contained in a notice issued by the Council of the Association giving a list of firms said to be in "wage rate default," and including the name of the plaintiffs. That notice was not sent only to members of the Association, as one might expect, but was broadcast, for in addition to those members it was sent to London architects and quantity surveyors, Government departments, London authorities, Metropolitan Police, the Metropolitan Water and Asylums Boards, the Metropolitan Railway Co., the Gas Light & Coke Co., regional builders' federations and others.

His Lordship said that in the defence there was no plea that the words "in wage rate default" had a special meaning.

Continuing, the learned counsel said that three of the defendants—Messrs. Holloway, Panton, and Bartlett—pleaded that they had nothing to do with the issuing of that document, but, observed counsel, the very people who published that alleged libel were conscious that the thing of which they complained was being done, and at that time, by their own members. Before the circulation of the alleged libel, Bovis, Ltd., had done extremely well and had made very considerable progress, having secured large and important contracts in London, and had, in fact, cut into "the ring" of old-established builders who had been obtaining most of the big contracts. Following the publication, however, the turnover of Bovis, Ltd., began to drop, and they received intimation after intimation from persons who expressed regret that they could not invite the firm to tender. Recipients of the Association's circular, said counsel, believed that in some way or other Bovis, Ltd., had broken a promise. Forty or fifty members of the Association had never signed Form "A." Others had refused to sign it, and in some cases the matter was surmounted by builders paying employees extra at the end of a job, and yet action was taken against the plaintiffs—who had ceased to be members of the Association—for not signing. Messrs. Bovis wrote demanding that the offending statement should be withdrawn, and the reply was that the circular was intended only to make known that there was a dispute about the application of certain by-laws of the Association for securing the payment of standard wages, and that they would withdraw the circular and any imputation the publication made. The letter also stated that they had interpreted the by-laws with impartiality and fairnesss in every case reported to the Association, and further pointed out that the meaning of "wage rate default" was that the firm in question had not signed Form "A."

In conclusion, Sir John said there was no withdrawal of the circular complained of, and that the defendants could have examined the books of the plaintiffs.

Evidence was then given on behalf of plaintiffs by Mr. Sidney Gluckstein, Mr. Wilfred Yates (of Messrs. Yates, Cook & Darbyshire), Mr. Digby Lewis Solomon, Mr. George Mott, Mr. Gerald Perkins, and Mr. S. G. Joseph.

At the conclusion of the evidence for the plaintiffs Mr. Stuart Bevan, for the defendants, submitted that there was no evidence against the defendants Panton and Bartlett; and, secondly, that there was no case against any of the defendants in respect of the publication of any of the circulars. They had pleaded justification, and Mr. Gluckstein, in the box, had been taken through the statements in the circular, and in effect had admitted that they were true.

His Lordship: I think you are right on that.

Sir John Simon contended it was for the jury to say whether the defendants had made out their defence. Notwithstanding his lordship's ruling that he could not give evidence in support of his innuendo, his submission was that it was still for the jury to say what was the meaning which an ordinary person would put upon the circulars quite apart from any special meaning which he (counsel) sought to give them. The question was, whether any ordinary person would understand from the words "according to the by-laws," that "wage rate default" meant something which had nothing to do with wages or with rates, or with default.

Mr. Justice Horridge, in giving judgment, said he came to the conclusion that he ought not to allow the case to go any further. The alleged libel was contained in the circulars of April 8, 1925, and subsequent dates. It was not necessary for him to consider whether those documents meant merely that the plaintiffs had been declared to be wage rate defaulters or that they were, in fact, wage rate defaulters, because on the admitted facts they were wage rate defaulters according to the by-laws, and had been declared to be so. They had placed themselves, as Mr. Gluckstein had been bound to admit, in the position of being declared in wage rate default. In this case and on the documents the words complained of were true in substance and in fact, and a verdict to the contrary would be set aside as perverse. He must therefore direct the jury to return a verdict for the defendants.

The jury accordingly formally returned a verdict for the defendants, and judgment was entered for the defendants with costs.

[We have received a letter from Messrs. Bovis, Ltd., in which they state it is their intention to appeal against this decision.]

FOUNDATIONS AND REINFORCED CONCRETE

A PAPER on this subject was recently read before the Norwich Engineering Society by Mr. M. F. Palmer, chief assistant to Mr. George Kenworthy, engineer, of Norwich.

Mr. Palmer said that we had emerged from the steel age and live in what might be called the concrete age; it was no exaggeration that many great modern engineering feats accomplished could not have been but for Portland cement concrete. In foundations, concrete was doubtless in one of its most useful spheres. The kinds of earths ordinarily met with could be divided into three main sections: rock, firm ground, and soft ground. Rock foundations were the ideal, but were seldom met with in practice. They were dealt with by cleaning the rock and concreting directly on to it. A combination of soft ground overlying a hard stratum at a reasonable depth or vice versa were usually the commonest foundations met with. Where it was necessary to pile for a foundation reinforced concrete piles could be used in every case where timber would be possible and in many where a timber pile would be impracticable, i.e., in an alternatively wet and dry soil, which would rot the timber. There were three main types of piles. First the ordinary reinforced concrete pile, which was driven to the hard to secure a resistance; and secondly, bearing piles, which relied on the friction of their sides and the surrounding earth to support the load. These were sometimes designed with serrated sides to increase their frictional resistance. Thirdly, there were sheet piles, which were used for confining such soils as running sand or water, and also for quay walls, etc.

By analysing the above three types in the order stated, the first kind was used where the hard strata were not more than, say, 40 ft. to 50 ft. below the surface, or where very heavy loads had to be supported. There were mainly two systems of piling under this type: precast, or piles cast in moulds and allowed to mature before driving; and the "Monolith" system of piling, i.e., cast in situ by means of a tube driven in the ground, filled with concrete then withdrawn. Precast piles had to be designed to withstand shock, etc., when driving, which was equivalent to many times any superimposed load they might be called upon to support; and also to resist the enormous bending moment stresses caused by dead weight during handling. Fig. 1 shows a method for slinging long concrete piles. In driving, a short fall with a heavy ram was advocated, and had been proved to be more efficient and better than a longer fall with a lighter ram. Precast piles in some exceptional circumstances had been made up to 110 ft. in length, and it might be added that in these cases, to keep the dead-weight down as much as possible—for handling purposes on site—they were sometimes cast with a hollow core about 9 in. diameter.

Piles were driven by means of a piling machine, which generally comprised a lattice trestle or tower, fitted with a vertical guide in which slid the ram or monkey, made of iron and varying in weight from about ¼ to 5 tons. This monkey was hauled up in its guide a certain distance, then released to fall on the pile-head, forcing the pile a small distance into the ground. This was known as the "set." Either a winch operated by hand or a steam-engine—according to the numbers and sizes of piles to be driven—was used for operating the monkey. It was easier to drive a round or octagonal pile than a square one, although square ones were generally used because of simplification in, and therefore cheaper, moulds. In driving pre-cast piles, wooden "dollies" were placed on the heads of the piles, and took the actual blow from the monkey. Packing of sacks or rope was placed between the pile-head and the dolly. The heads of piles were generally made of a richer mix of concrete—say, 1, 1½, 3, with remainder of pile 1, 2, 4. Piles could be lengthened if required during driving by exposing the main reinforcing rods for a distance of about 3 ft., then joining on a further length of reinforcing framework and concreting on the extra length of pile in situ. After the necessary time had elapsed to allow the new concrete to harden the pile could be driven home. Although perhaps theoretically a "set" of 3 in. or 4 in. was all that was necessary to support a given load, nevertheless it was usual practice to drive until a final set of not more than ¼in. was obtained. It was not unusual for driving operations to shatter or break a pile-head after having driven a certain distance; but this was really a good sign, as it indicated that a resistance was being met. A pile-head would not splinter while driving continued easy.

To pre-determine the length to cast piles it was necessary first to drive a test pile—the best method—or to take borings, which would reveal the nature of the soils and their value as frictional supporting materials.

Bearing piles supported their load by side friction only. Where the hard was at an uneconomical depth and the super soil was of a suitable nature, bearing piles were found to be an excellent proposition. This type of pile would generally be quite safe against settlement when the working load was about a quarter of the estimated ultimate resistance.

Pile driving generally had the effect of turning the layers of ground in a downward direction for a distance of about 2½ diameters around the pile, and it was the upward thrust of these layers in trying to regain their normal position which partly contributed towards the frictional resistance. It must be borne in mind that if water was continually pumped from an excavation in water-logged soil, one was gradually drawing water from the ground and a grave danger existed of undermining and causing settlements to existing structures. Wherever possible it was always advisable to transmit loads to firm bearing strata. On small jobs it was cheaper to found on concrete blocks or "legs" instead of piles. The smallest size possible of these legs was about 5 ft. by 5 ft. 6 in. to allow of a man working in same. In excavating for these water was sometimes encountered. There was still some hesitancy against laying concrete in water until set; but if proper precautions were taken excellent concrete resulted. Concrete laid in "still" water could be superior to concrete laid in air; this was owing to the fact that drying out could possibly occur. The water must be quite still so as not to wash away cement, which would, of course, weaken the resultant concrete.

There were several ways of placing concrete in water; but the best method on moderate-sized contracts was found to be first to mix the dry mixed concrete with as little water as possible—just enough to make it in a thick plastic condition—and then deposit through a long tube or chute, with its lower end resting on the bottom of the excavation and the top end well above water level. Concrete laid in this manner was forced into position under a far greater force than was possible with ordinary hand-ramming. Another procedure which was sometimes adopted was to fill the wet mixed concrete into sacks or large bags and then lower into position. This method was, however, inferior to the above, as bonding of the concrete was not always capable of being carried out. When above water, the concrete could be thrown in from ground level down the hole, and the velocity attained helped considerably to consolidate the mass. A better method would be to ram the concrete in the ordinary manner. Where the size of the job permitted the mixed concrete was generally deposited under water in buckets, which were sometimes covered over at the top with doors; but in any case, with opening doors underneath. These became unlatched when the bucket lay on the bottom of the foundation, and slowly opened as the bucket was pulled up, the material gradually falling into place.

Sea water should never be used for making concrete, as the results obtained were variable and unreliable.

Rapid hardening cements could be used with advantage, and a rendered or tarred surface was very effective against the action of sea water.

Regarding ultimate strengths of salt and fresh water concrete, there was practically no difference; but concrete made with sea water was longer in "going off." Where salt water was used, the concrete when set presented sometimes efflorescence on the surface, but beyond being unsightly this had no ill-effect. The efflorescence could be removed with a wash of diluted acid applied as soon as possible.

Reinforced concrete rafts were used for spreading loads over very large areas, and had often proved a cheap solution in foundation problems. They had sometimes solved what might at first have seemed almost hopeless

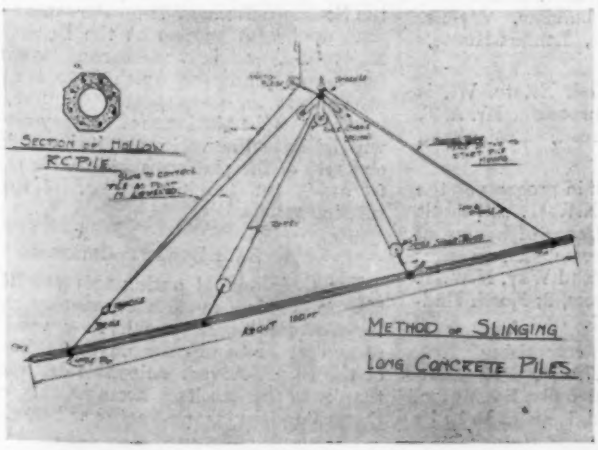


FIG. 1.

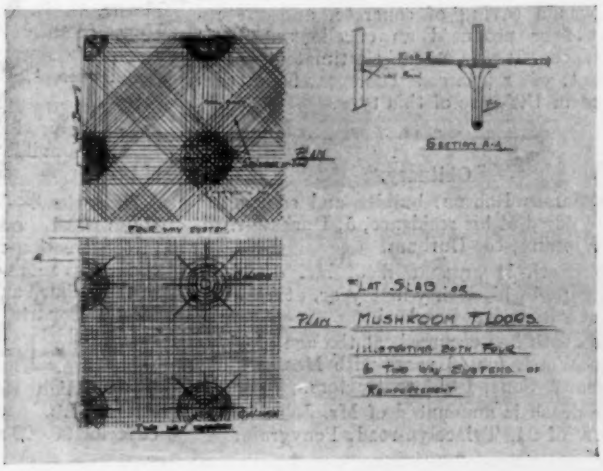


FIG. 2.

problems. A raft would ofttimes form a ground floor to a building, and thus serve a double purpose. In supporting a building on a raft special attention had to be given to points where heavy concentrated loads were likely to occur which would over-stress the underlying soil. At these points the raft was extended to a greater depth, or bearing piles if the soil was suitable were inserted to take the surplus load. Care, on the other hand, must be taken not to make any one portion of the raft stronger than another, as if this happened part would have a tendency to subside quicker than another, with the result that the raft would, literally speaking, "break its back." In founding on a very soft ground, an even settlement all over the raft occurred, and was generally recovered by erecting the structure higher than necessary by the amount of the estimated subsidence. This might be a matter of 12 in. or more in heavy constructions. Water-tanks, owing to evenly distributed weights, were admirably suited to a raft foundation.

Leakage of drains was a very common cause of subsistence and cracks in buildings—particularly if the subsoil was of chalk; and earth, whilst forming an excellent foundation when dry, could be very treacherous if water was allowed to soak into same.

Regarding reinforced concrete work in America, there had been in use for some time an original design of reinforced concrete floor known as the "Flat Slab" or "Mushroom" floor (see Fig. 2). This system was only possible in reinforced concrete. One generally knew of floors as constructed of main beams, perhaps secondary beams, and a slab over. It would be seen that no beams were used in this system, the slab only being supported on columns with mushroom heads—hence the name. This system was in general use in America in 1914, but in this country only a few structures had been thus erected, which was perhaps largely due to the necessary adherence to local by-laws, which at the present time did not include provision for this principle. In the elimination of beams a clear and unobstructed ceiling was obtained. There were two systems: (1) the "Two Way" system, in which the rods were placed parallel and at right angles to the columns; (2) the "Four Way" system, similar to the two way but with the addition of the diagonal bars, as shown. It would be noticed that the concrete was thickened over the columns to resist shearing stresses, and sometimes circular hoops and radiating bars, as shown, were inserted over the columns; but these were considered by some authorities as unnecessary. The design was of a complicated character inasmuch as no scientific method had been evolved for determining the stresses in a slab supported at four corners; columns were required of a larger size than usual, and floor bays should be square if possible. This method was not economical if there were less than five bays wide each way. Owing to the high stresses in the slab and columns it was necessary to use a richer mix of concrete than was usually the case with ordinary reinforced concrete floors. Considerably more reinforcement was required than in the usual beam and slab construction; but there was a saving of concrete, and the resultant floor produced an excellent æsthetic appearance. It was recently estimated that 90 per cent. of reinforced concrete floors constructed in U.S. are of this type.

Obituary.

Mr. James Robson, builder and contractor, aged 82, died at his residence, 5, Durham-road, Esh Winning, co. Durham.

The death is announced of Mr. J. H. C. Lamacraft, in his eighty-first year, at Dawlish, head of a large building business.

The death has occurred, at the age of 71, of James Wood, for 46 years with Messrs. John Mowlem & Sons, Ltd., contractors.

The death is announced of Mr. John James, builder, of 24, Tylacelyn-road, Penygraig.

NEW BUILDINGS IN LONDON.

Bermondsey.—A large factory is to be erected in Spa-road, Bermondsey, S.E.1, for Messrs. Lipton, Ltd., tea merchants, with warehouse adjoining. Mr. Henry Kent, builder, Hither Green, S.E.13.

Carmelite-street.—Plans for an addition to the premises of the City of London School for Girls in Carmelite-street, E.C.4, have been approved by the Governors of the School and by the L.C.C.

Charing Cross.—The governing committee of the Charing Cross Hospital, S.W., expect to obtain possession of the buildings of the Royal Westminster Ophthalmic Hospital in King William-street, Strand, W.C., in about 12 months' time, when considerabe alterations and re-equipping will take place to adapt it as an extension of that institution.

City.—A large block of office premises is to be erected at the corner of Leadenhall-street and Leadenhall Market, E.C.3, comprising six floors, with shops on the street level. Messrs. Howell J. Williams, Ltd., builders, 11, Bermondsey-street, Lambeth, S.E.1. Messrs. Josephs, architects, 2, Paul's Bakehouse-court, E.C.4.

Clapham.—A large block of business premises, comprising shops on the ground floor, with flats and showrooms above, is to be erected on an extensive frontage to Balham High-street, S.W. Messrs. North, Robin & Wilsdon, architects, 35–39, Maddox-street, W.1.

Croydon.—Messrs. Plummer, Roddis, Ltd., of Pinners' Hall, Austin Friars, E.C.2, have acquired the business and large premises in High-street of Messrs. Kennards, Ltd., drapers, and have extensive additions in contemplation.

Croydon.—The Coulsdon Estate of Messrs. Hall & Co., Ltd., Victoria Wharf, Croydon, is to be developed and building sites sold for the erection of first-class residences.

Fenchurch-street.—A site in Fenchurch-street, E.C.3, is now being excavated prior to the erection of a large office building, for Messrs. Richard Ellis & Sons, chartered surveyors, 45, Fenchurch-street, E.C.3. Messrs. B. Goodman, Ltd., excavators, 33, Haggerston-road, E. Messrs. Trollope & Colls, Ltd., builders, 5, Coleman-street, E.C.2. Messrs. J. Campbell Jones, Son & Smithers, architects, 9, Dowgate Hill, Cannon-street, E.C.4.

Fenchurch-street.—The L.C.C. have sanctioned the building of new office and shop premises on the site of Nos. 36–38, Fenchurch-street, E.C.3, of a greater height than that prescribed by the London Building Act, 1894. Messrs. Campbell, Jones, Son & Smithers, architects, Skinners' Hall, 9, Dowgate-Hill, Cannon-street, E.C.4.

Finsbury.—Plans have been prepared for a large building at the corner of City-road and Tabernacle-street, E.C.2., to provide accommodation for headquarters, showrooms and offices for a business firm. Mr. William Arthur Lewis, A.R.I.B.A., architect, 11–12, Finsbury-square, E.C.2.

Great Portland-street.—New shops and offices are to be erected upon the corner site in Great Portland-street, W.1, and Margaret-street, W.1. Messrs. G. E. Wallis & Son, Ltd., Broadmead House, Panton-street, W.1, builders, Messrs. Brown & Barrow, architects, Lennox House, Lennox-street, W.C.

Hammersmith.—The Old Oak Estate, W., is to be developed for building purposes. Mr. A. T. Rowley, builder, Walpole-road, Tottenham, N.17.

Hampstead.—Developments in progress at the Hampstead Garden Suburb, N.W.11, will result in the erection of a large number of houses, of good-class shops and flats, cinema, &c., on sites in the Suburb and on Hampstead Way, N.W.11. Messrs. Coparts, Ltd., surveyors, 2, North End-road, Golders Green, N.W.11.

Holborn.—The property comprising Nos. 73–78, High Holborn and 72–78, Red Lion-street, W.C., owned by Maud Lady Donington, covering 20,000 sq. ft. of land, is about to be let on building lease. Messrs. Weatherall & Green, surveyors.

Kingsway.—Application has been made to the L.C.C. for permission to erect a shelter addition on the roof of the West London Mission, in Wild-Court, Kingsway, W.C. Messrs. Gunton & Gunton, architects, Finsbury House, Blomfield-street, E.C.2.

Merton East.—The cost of building a new elementary school at East Merton is estimated by the Surrey C.C. Education Committee at £14,000. Messrs. Jarvis & Richardson, architects, 60, Tufton-street, Westminster, S.W.1.

Piccadilly.—Excavations are being made on the site at the corner of Piccadilly and Albemarle-street, W.1, for foundations for the new office and banking premises to be erected there for the Westminster Bank, Ltd. Messrs. Leslie & Co., Ltd., builders, Kensington-square, W.8. Mr. W. Curtis Green, A.R.A., architect, 5, Pickering-place, St. James's-street, S.W.1.

Purley.—A new station at Riddlesdown, between Purley and Coulsdon, is to be erected on the Southern Railway by the Company. Plans by Chief Engineer's Office, Waterloo Station, S.E.1.

Regent-street.—New shops and showrooms, surmounted by five floors of offices, are to be built on the corner site at No. 120, Regent-street, W.1, for Messrs. Carrington & Co., jewellers and silversmiths. Messrs. Higgs & Hill, Ltd., Crown Works, South Lambeth-road, S.E. Messrs. Henry Tanner & Son, architects, 3, Hanover-square, W.1.

Smith-square.—Permission has been given for the erection of an addition to Transport House, Smith-square, Westminster, S.W.1 of a greater height than that prescribed by the London Building Act, 1894. Messrs. Ewart G. Culpin & R. G. Bowers, architects, 3, Portsmouth-street, Lincoln's Inn, W.C.2.

South Norwood.—Funds are being raised for the erection in the near future of a church institute in connection with St. Luke's Church, at Woodside, South Norwood, S.E.25. Vicar, Rev. E. Golber.

Streatham.—A vicarage is to be built in the parish of St. James's, West Streatham, S.W.16, for the Rev. J. F. Moore, Vicar. M. T. F. Ford, A.R.I.B.A., architect, "Homeleigh," Day's-lane, Sidcup, Kent.

Westminster.—Negotiations are proceeding for the disposal of the large office property known as Nos. 8, 9 and 10, Great George-street, S.W.1, owned by Sir W. G. Armstrong, Whitworth & Co., Ltd. Under the terms of the 999 years' lease, Nos. 9 and 10, have to be rebuilt by March 25, 1930. Messrs. George Trollope & Sons, surveyors, 45, Parliament-street, Westminster, S.W.1.

Westminster.—Messrs. George Trollope & Sons, surveyors, Parliament-street, S.W.1, have sold a site, of nearly half an acre, in Tufton-street and Marsham-street, S.W.1, to a religious society for new headquarters.

Omnibus Station at Victoria.

The omnibus station which has been made within the forecourt of the Victoria Station of the Southern Railway is on the same system as that used with success at the British Empire Exhibition, and is a permanent layout of the temporary platforms which have been in use at Victoria for some years. Signposts at the entrance to the platforms when they are finished will indicate the various routes, and the solid concrete of the platforms will enable passengers to await the omnibuses clear of the actual running tracks.

Bath Builders' Outing.

For their annual outing this year the Bath Master Builders made a journey by charabanc to Weymouth. As usual, they were accompanied on the trip by the Mayor and Town Clerk of the City. A very enjoyable day was spent, thanks to the excellent arrangements made by Councillor Hiskins, who acted as hon. secretary.

RATES OF WAGES IN THE BUILDING TRADE

Every endeavour is made to ensure accuracy, but we cannot be responsible for errors.

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers
Aberdare	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Accrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Altrincham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ashton-under-Lyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barnsley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barrow-in-Furness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Barry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bath	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bedford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Birkenhead	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Birmingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bishop Auckland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Blackburn	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Blackpool	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bolton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bournemouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bradford	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Brentwood	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bridgwater	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1
Brighton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Bristol	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Burnley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Burton-on-Trent	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Bury	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Cambridge	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Cardiff	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chatham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Chelmsford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Cheltenham	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Chester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Chesterfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Colchester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Coventry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Crewe	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Darlington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Derby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Doncaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dudley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Durham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
E. Glam. (Mon. Vall.)	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Eastbourne	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Exeter	1/7	1/7	1/7	1/7	1/7	1/7	1/6	1/2½
Folkestone	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Gloucester	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Grantham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Grays	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/3½
Grimsby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Great Yarmouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Guildford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Halifax	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Harrogate	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hartlepools	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hastings	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hereford	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Huddersfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Hull	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Ipswich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Lancaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leamington Spa	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Leeds	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Leicester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Lichfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Lincoln	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Liverpool	1/10	1/10	1/10	1/11	1/10	1/10	1/9½	1/4½
Llanelly	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
London { 12 m. radius	1/9½	1/9½	1/9½	1/9½	1/9½	1/9½	1/8½	1/4½
London { 12–15 m. radius	1/9	1/9	1/9	1/9	1/9	1/9	1/8	1/4
Loughborough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Luton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Maidstone	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Manchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Mansfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Merthyr Tydfil	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Middlesbrough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Newcastle-on-Tyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Newport, Mon.	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Northampton	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Norwich	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Nottingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Oakham	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Oldham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Oxford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Plymouth	1/8	1/8	1/8	1/8	1/8	1/8	1/7	1/3½
Pontypridd	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Portsmouth	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Preston	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Reading	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Rochdale	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Rochester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Rugby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
St. Albans	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
St. Helens	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Scarborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Sheffield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Shrewsbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Southampton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Southend-on-Sea	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Southport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
South Shields	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stockport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stockton-on-Tees	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stoke-on-Trent	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Stroud	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5	1/1½
Sunderland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Swansea	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Swindon	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½
Taunton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Torquay	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Tunbridge Wells	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Wakefield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Walsall	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/2½
Warrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
West Bromwich	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Wigan	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Windsor	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Wolverhampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Worcester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
York	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½

For rates of wages in the Building Trade in Scotland, see page 111.

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, etc.

JULY 19.—**Barnsley.**—PAINTING.—External painting of the Old Rectory and Obelisk House, Church-street, for the Committee of the Beckett Hospital. A. L. Bourne, Secretary-Superintendent.

JULY 19.—**Bucklow.**—HOUSES.—Fourteen non-parlour type houses, in pairs, in connection with the Carrington scheme, for the R.D.C. R. Curtis Cordon, engineer and surveyor, 25, Station-buildings, Altrincham. Deposit, £2 2s.

JULY 19.—**Cumberland.**—DECORATING.—Various police stations and houses: Aspatria, Brampton; Carlisle, 26, Eldred-street; Cleator Moor, Cockermouth, old and new police stations; Flimby, Maryport police Station; Maryport, 5, North-street and 1, Bank-terrace; Grassiot, Millom police station; Millom, 17, salthouse-road; Penrith, 38 & 39, Wordsworth-street and 7 & 8, Beacon-road; Smithfield, Wetheral Wigton, 6 & 8, Church-street; Whitehaven; Workington, Gladstone-street and 31 & 33, Ashton-street, for the C.C. J. Forster, F.R.I.B.A., County Architect, The Courts, Carlisle.

JULY 19.—**Dover.**—REBUILDING.—New cubical block, laundry block and various works to the Isolation Hospital, Noah's Ark-road, for the T.C. J. F. Duthoit, A.R.I.B.A., architect. Deposit £2 2s.

JULY 19.—**Edinburgh.**—ALTERATIONS.—For (1) engineering work, comprising laundry machinery, steam pipes, filters, calorifiers, &c.; (2) plumber work; (3) mason, concreter, joiner, plasterer, and tiler work, for the alterations at Portobello baths, for the T.C. J. MacRae, A.R.I.B.A., City Architect.

JULY 19.—**Epsom.**—PAINTING.—External repairs, cleaning and painting at the Cuddington Isolation Hospital, situate near Banstead Station, for the Epsom, Sutton, Carshalton and Leatherhead Joint Hospital Board. A. C. Williams, architect, Ashley-road, Epsom.

JULY 19.—**Glamorgan.**—PAINTING.—Painting 30 schools in the Eastern Division and 15 schools in the Western Division, for the C.C. T. Mansel Franklen, Secretary of the E.C., Glamorgan County Hall, Cardiff.

JULY 19.—**Heckmondwike.**—HOUSES.—Thirty-four non-parlour houses at Stubley estate, for the U.D.C. F. W. Littlewood, Surveyor.

JULY 19.—**Jedburgh.**—HOUSES.—Two blocks of four houses each, for the T.C. Burgh Surveyor.

JULY 19.—**Keighley.**—ADDITIONS.—Alterations and additions (conveniences) at the Grammar school, for the West Riding E.C. The Education Department, County Hall, Wakefield.

JULY 19.—**Liverpool.**—SCHOOL.—Junior mixed section of the Duncombe-road Council school, for the T.C. Land Steward and Surveyor. Deposit £2 2s.

JULY 19.—**Near Hexham.**—ADDITIONS.—Alterations and additions to Slaley Council school, near Hexham, for the Northumberland E.C. C. Williams, Director of Education, The Moothall, Newcastle-upon-Tyne. Deposit £1 1s.

JULY 19.—**Newcastle-upon-Tyne.**—TERRAZZO.—Sanitary fittings and terrazzo work at the new nurses' home, Westgate-road, for the B.G. Harrison & Ash, architects, 22, Ellison-place.

JULY 19.—**Pembroke.**—LIBRARY.—Public library at Anglesea-road, Ballsbridge, Co. Dublin, for the U.D.C. Kaye-Parry, Ross & Hendy, architects, 48, Kildare-street, Dublin. Deposit £1.

JULY 19.—**Pudsey.**—HOUSES.—Twenty parlour and 16 non-parlour type houses on the Carlisle-road estate, for the T.C. H. Noble, Borough Surveyor. Deposit £1 1s.

JULY 19.—**Sheffield.**—BUILDING.—Transformer substation in Herries-road, for the T.C. S. E. Fedden, General Manager and Engineer, Commercial-street. Deposit 10s. 6d.

JULY 19.—**Sheffield.**—GARAGE.—General builders' work at Tenter-street depot and garage, for the T.C. W. G. Davies, A.R.I.B.A., City Architect. Deposit £2.

JULY 19.—**Shipden.**—BUNGALOW.—Two detached bungalows on adjacent sites at Red Beck. G. R. Oddy, L.R.I.B.A., architect and surveyor, Ward's End Chambers, Halifax.

JULY 19.—**Skipton.**—EXTENSION.—Extension of the dining-room at the Grammar School, for the West Riding E.C. Education Department, County Hall, Wakefield.

JULY 19.—**Wantage.**—COTTAGES.—Erection of 20 in the parishes of East Ilsley (6), Chaddleworth (6), Letcombe Bassett (6), Childrey (4), Harwell (4), and East Hendred (4). Parishes of East Ilsley and Chaddleworth, H. H. Parkhouse, Charlton-road, Wantage; parishes of Letcombe Bassett, Childrey, Harwell, and East Hendred, J. W. Harris, East Challow, Wantage. Deposit £1 1s.

JULY 19.—**Wood Green.**—HOUSES.—Erection of 47 on the White Hart-lane estate, for the U.D.C. C. H. Croxford, Engineer and Surveyor, Town Hall, Wood Green. Deposit £1 1s.

JULY 20.—**Brentford.**—HOUSES.—Erection of (*a*) 118 houses and, alternatively, (*b*) 39 houses. (*c*) 27 houses, (*d*) 23 houses, and (*e*) 29 houses, on land fronting Lionel-road, Brentford, for the U.D.C. W. J. W. Westlake, F.S.I., Surveyor to the Council, Clifden House, Boston-road, Brentford. Deposit £1 1s.

✱JULY 20.—**Chiswick.**—PAINTING, &c.—Painting and decorative works at the Hogarth Boys' and Infants' Schools, Duke-road, for the U.D.C. Edward Willis, F.S.I., M.Inst.C.E., Engineer, Town Hall, Chiswick, W.4.

JULY 20.—**Davidstow.**—HOUSE.—House at Davidstow, for H. Greenwood. S. Symons, The Bungalow, Trebarwith, Tintagel.

JULY 20.—**Drogheda.**—HOUSES.—For Lyons' Field, Trinity-street, 20; brickfield, Trinity-street, 2; Finegan's Field, North-road, 14; Nun's-walk, 7, for the T.C. Borough Surveyor.

JULY 20.—**Haslingden.**—HOUSES.—Sixty-eight brick houses on the Clarence site, Helmshore-road, for the T.C. R. Taylor, Borough Surveyor. Deposit £2 2s.

JULY 20.—**Northam.**—ENLARGING.—Enlarging the Melbury Reservoir, Parkham, for the U.D.C. W. G. Champion, surveyor.

JULY 20.—**Llangollen.**—HOUSES.—For (*a*) the erection and completion of 34 houses of various types on sites at Trevor, Garth, Brynegiwys and Pentre Dwfr; and (*b*) the construction of roads, footpaths, sewers, &c., for the R.D.C. Berrington & Son, architects, Prudential Chambers, Lichfield-street, Wolverhampton. Deposit £2 2s.

JULY 20. — **Nottingham.** — PAINTING. — Painting various buildings, &c., at the Cattle Market, London-road, and Meadow-lane, for the T.C. T. Wallis Gordon, City Engineer and Surveyor. Deposit £1.

JULY 20.—**Prescot.**—HOUSES.—Twelve houses on Stanley's Croft, for the U.D.C. W. Ellis, architect, 9, Hardshaw-street, St. Helens. Deposit £1 1s.

JULY 20.—**Sheffield.**—HOUSES.—Forty-two houses at the Manor Estate, Intake, for the T.C. W. G. Davies, A.R.I.B.A., City Architect. Deposit, £2.

JULY 20. —**Sheffield.**—CENTRE.—Maternity and child welfare centre, in Orchard-place, for the T.C. W. G. Davies, A.R.I.B.A., City Architect. Deposit, £2.

JULY 20.—**Whittlesey.**—HOUSES.—Eight houses at Burnt House-road, near Three Horse Shoes, for the R.D.C. H. W. Hawkins, Old Fletton, Peterborough. Deposit £1 1s.

✱JULY 20.—**Woodstock, Oxon.**—COTTAGES.—Erection of eight cottages at Kidlington, in the county of Oxford, for the R.D.C.F .E. Openshaw, A.R.I.B.A., 65, St. Giles, Oxford.

JULY 21.—**Barnet.**—HOUSES.—Erection and completion of nine pairs of parlour type houses in Mutton-lane, Potters Bar, for the South Mimms R.D.C. H. W. Poole, solicitor, Clerk to the Council, 93, High-street, Barnet.

JULY 21.—**Chester.**—ADDITIONS.—Alterations and additions to the City and County School for Boys, Queen's Park, for the T.C. C. Greenwood, City Engineer and Surveyor. Deposit £1 1s.

JULY 21.—**Devon.**—PAINTING.—Council schools:—Brixham, Furzeham Hill: improvement of offices, fixing sanitary fittings, and renovations, &c.; Newton Poppleford: alterations, ventilation, and renovations, &c.; Ottery St. Mary, Westhill: alterations, ventilation, and renovations, &c.; Paignton, Curledge-street (infants): alterations to offices, &c.; Plympton Public: alterations, new heating chamber, &c.; St. Marytavy: alterations to windows, &c., renovations, &c.; Southtawton: repairs to roofs and chimneys, &c., alterations to windows, &c., renovations, &c., and Secondary Schools—Exmouth: improvement of offices, &c., external renovations, &c.; Newton Abbot: renovations, &c.; Plympton Grammar: renovations, &c.; Teignmouth: renovations, &c.; Torquay: renovations, &c.; Totnes Grammar: renovations, &c., for the E.C. Architect's Office, 1, Blackall-road, Exeter.

JULY 21.—**Great Ouseburn.**—COTTAGES.—Eight cottages in two blocks of four in each of the following villages: Boroughbridge, Staveley, and Whixley, for the R.D.C. H. S. Thompson, clerk.

JULY 21.—**Guiseley.**—SCHOOLS.—Wesleyan Sunday schools at Guiseley. H. B. Downs, A.R.I.B.A., architect, 2, Station-bridge, Harrogate.

JULY 21.—**Hove.**—PAINTING.—The external wood and iron work of the Cemetery Lodge and Chapels, for the T.C. Borough Surveyor.

JULY 21.—**Lanchester.**—HOUSES.—Twelve bungalows at Ebchester, for the R.D.C. J. J. S. Barker, clerk.

JULY 21.—**London.**—DWELLINGS.—Three blocks of dwellings on the Whitmore estate (Ware-street area), Shoreditch, for the L.C.C. Architect to the Council, the County Hall (Room No. 3), Westminster Bridge, S.E.1. Deposit £2.

JULY 21.—**Navan.**—RE-CONDITIONING.—Of a fish hatchery at Black Castle, for the Department of Fisheries. L. C. Moriarty, Secretary, Department of Fisheries, Kildare-place, Dublin. Deposit, £1.

JULY 21.—**Ongar.**—DWELLINGS.—For (*a*) three pairs at Mill-lane, High Ongar; (*b*) two pairs at Little Myles, Stondon; (*c*) two pairs at Moreton End, Moreton; (*d*) one pair at Church Field, Doddinghurst; (*e*) one pair at Ladyland, Norton Mandeville, for the R.D.C. P. R. B. Pearce, Housing Surveyor.

JULY 21.—**South Mimms.**—HOUSES.—Nine pairs parlour-type houses in Mutton-lane, Potter's Bar, for the R.D.C. H. W. Poole, clerk, 93, High-street, Barnet.

JULY 22. — **Bexleyheath.** — HOUSES. — Erection of four semi-detached houses in Highland-road Bexleyheath, for the U.D.C. W. T. Howse, Surveyor to the Council, Council Offices. Deposit £1 1s.

JULY 22.—**Liskeard.**—HOUSES.—Four houses, for the R.D.C. E. C. Higman, L.R.I.B.A., Barras-street.

JULY 22.—**London.**—PAINTING.—Internal cleaning and painting works, new flooring and ceilings, provision of new stoves, the reconstruction of a sanitary annexe with new sanitary fittings, &c., at the Newington Institution, Westmoreland-road, S.E., for the Southwark B.G. A. Saxon Snell & Phillips, FF.R.I.B.A., 9, Bentinck-street, Manchester-square, W.1. Deposit £5.

JULY 22.—**Tralee.**—HOUSES.—Sixteen houses at Castle Demesne, Cloonbeg, for the U.D.C. O. G. Tough, Town Surveyor. Deposit, £2 2s.

✱JULY 22.—**Wallingford, Berks.**—HOUSES.—Erection of 44 at Didcot, for the Wallingford R.D.C. F. H. Floyd, Council's Architect, Market Place, Newbury, Berks.

JULY 23.—**Bristol.**—CHALET.—For consumptive patients at the Southmead Hospital, for the B.G. Thos. S. Lamb, clerk, St. Peter's Hospital. Deposit £3.

JULY 23.—**Glasgow.**—PAINTING.—For (1) The re-sheeting and re-painting of Nos. 1 & 2 retort houses at Dalmarnock gas works; (2) the re-sheeting of the oxide shed roof at Tradeston gas works; and (3) the construction of a reinforced concrete wall at Dawsholm gas works, for the T.C. J. Lindsay, Town Clerk.

JULY 23.—**Staffordshire.**—EMPLOYMENT EXCHANGE—Erection and completion of an employment exchange at Willenhall, for the Commissioners of His Majesty's Office of Works. Contracts Branch, King Charles-street, London, S.W.1. Deposit 1 guinea (cheques payable to the Commissioners).

JULY 23.—**Watford.**—HOUSES.—Erection of 22 parlour, on the Harebreaks estate, Watford, for the Corporation. W. W. Newman, A.M.I.C.E., F.S.I., Borough Engineer, Municipal Offices, 14, High-street, Watford. Deposit £2 2s., payable to the Borough Treasurer.

JULY 24.—**Derby.**—NEW HOSPITAL.—Erection of, opposite to the Poor Law Institution, on Uttoxeter-road, Derby, for the Guardians of the Union. Ralph Grantham, Clerk to the Guardians, Poor Law Offices, Derby. Deposit £3 3s.

JULY 24.—**Leamington Spa.**—COTTAGES.—Erection of 66, to be built in pairs (semi-detached), for the Corporation. Borough Engineer, Town Hall, Leamington Spa. Deposit £2 2s.

JULY 24. — **Surrey.** — HOUSE.—Erection of a house to be occupied by the Clerk and Steward at Brookwood Mental Hospital, near Woking, for the County of Surrey Lunatic Asylum Visiting Committee. F. J. Hodgson, Lic.R.I.B.A., 36, High-street, Guildford. Deposit, £1 1s.

JULY 24.—**Swanage.**—HOUSES.—Six pairs of houses on the housing site at Herston, Swanage, for the U.D.C. T. E. Grimes, architect, 33, The Triangle, Bournemouth. Deposit, £1 1s.

JULY 26.—**Adwick-le-Street.**—BUILDING.—For (1) Excavating trenches for water mains at Skellow; (2) building of filter house, meter house, and forming lime pits at Adwick; and (3) street works, sewers and surface water drains at Skellow, for the U.D.C. F. Allen, clerk, Adwick-le-Street, Doncaster. Deposit, £2 each.

JULY 26.—**Bristol.**—LIGHTING.—Electric lighting of Sheds "E" and "F," The Grove, for the Port Authority. T. A. Peace, Engineer, Port of Bristol Authority, Chief Engineer's Office, Avonmouth Docks.

JULY 26.—**Carlisle.**—LIGHTING.—Lighting installation at the new electricity works, Willow Holme, for the T.C. C. W. Salt, City Electrical Engineer.

JULY 26.—**Chertsey.**—COTTAGES.—Twenty-eight cottages in Byfleet, for the R.D.C. N. S. Brettell, Clerk, 80, Guildford street. Deposit, £2 2s.

JULY 26.—**Chiswick.**—CONVERSION AND BUILDING.—(*a*) Conversion of existing school buildings at Glebe-street, Chiswick, into blocks of fourteen flats, and (*b*) the erection of eight new blocks of four flats each at Strand-on-the-Green, Chiswick, for the U.D.C. Edward Wallis, F.S.I., M.Inst.C.E., architect, Town Hall, Chiswick, W. 4. Deposit, £2 2s. in respect of each scheme.

JULY 26.—**East Preston.**—PAINTING.—External painting and repairs to the premises of the Poor Law Institution at East Preston, near Littlehampton, for the B.G. J. W. Calvert, Clerk, East-street, Littlehampton.

JULY 26. — **Layland.** — LIGHTING. — Wiring and general installation of electric light in the Public Hall buildings, Towngate, for the U.D.C. M. H. Wilkinson, surveyor.

JULY 26.—**London.**—FENCING.—Supply and erection of wrought-iron unclimbable fencing at the Kensington Memorial Recreation Ground, St. Quintin's Park, Kensington, for the L.C.C. Chief Officer, Parks Department, The County Hall, S.W.1 (Room 393F).

JULY 26.—**Pontefract.**—CENTRE.—Maternity and Child Welfare Centre, for the T.C. W. H. Newton, Borough Engineer and Surveyor. Deposit £2 2s.

JULY 26.—**Portsmouth.**—HOMES.—New Children's Homes, Peaked Field, Cosham, Portsmouth, for the Guardians of the Parish. G. E. Smith, L.R.I.B.A., architect, Victoria-road North, Southsea. Deposit, £3 3s.

JULY 26.—**Rathmines and Rathgar.**—PAINTING.—Of the outside of the Town Hall, Rathmines, for the U.D.C. Surveyor.

✱JULY 26.—**Twickenham.**—HOUSES.—Erection of 52 and four blocks of flats comprising 16 tenements, on the Colne Lodge site, Staines-road, Twickenham, for the U.D.C. Surveyor to the Council, Town Hall, Twickenham. Deposit £2 2s.

JULY 27.—**Cockermouth.**—HOUSES.—Twenty-six dwelling-houses of parlour and non-parlour type on Fitz-road site, together with drainage and fencing works, and the construction of roads and sewers, for the U.D.C. Hy. Graham, engineer and surveyor. Deposit, £2 2s.

JULY 27.—**Doncaster.**—HOUSES.—Eighty-one houses at Hexthorpe, for the T.C. F. Oscar Kirby, Borough Engineer, 2, Priory-place. Deposit £2 2s.

JULY 27.—**Edinburgh.**—EXTENSION.—Of Portobello power station, for the T.C. E. J. MacRae, A.R.I.B.A., City Architect, City Chambers.

✱JULY 27.—**Guildford.**—COTTAGES.—Erection of 39 non-parlour type cottages in the parishes of Puttenham (three), Pirbright (12), West Horsley (six), Shere (six), Clandon (12), for the R.D.C. J. W. Wilton, M.Inst.M. & Cy.E., Surveyor, Market Chambers, Onslow-street, Guildford. Deposit £2 2s.

✱JULY 27.—**Hitchin.**—COTTAGES.—Group No. 3, erection of 64, for the U.D.C. Surveyor, Town Hall, Hitchin. Deposit £2 2s.

✱JULY 27.—**Linslade.**—HOUSES.—Twelve houses in Mentmore-road, for the U.D.C. H. A. Rolls, architect, 31, High-street, Leighton Buzzard. Deposit £2 2s.

JULY 27.—**March.**—OFFICES.—Block of offices in extension of the County Hall, for the Isle of Ely C.C. R. S. W. Perkins, County Surveyor, Lynn-road, Wisbech. Deposit £3 3s.

JULY 27.—**Prestwich.**—PAINTING.—External painting of houses on the Council's estate: (1) 30 situate in Bentlane and 54 in The Meadows; (2) 30 situate in Scholes lane and 46 in Rectory-avenue and Rectory-lane, for the U.D.C. M. A. Piercy, engineer and surveyor.

✱JULY 27. — **Richmond, Surrey.** — BATHS AND LAUNDRY.—Extension to the public baths and provision of a new laundry at Parkshot, Richmond, for the Town Council. Borough Engineer and Surveyor, Town Hall, Richmond. Deposit £1 1s.

✱JULY 27.—**Sittingbourne.**—HOUSES.—Erection of 20 brick-built houses on Little Glovers Orchard, Bell-road, Sittingbourne, for the U.D.C. M. W. Lashmar, Surveyor, Town Hall, Sittingbourne. Deposit £1.

JULY 28.—**Edinburgh.**—HEATING.—Installation of a heating system at motor-bus garage Annandale-street, for the T.C. E. J. MacRae, A.R.I.B.A., City Architect.

JULY 28.—**Ilkley.**—HEATING.—Glasshouses and heating chambers, for the U.D.C. J. M. Gameson, surveyor.

JULY 28.—**London.**—ALTERATIONS AND ADDITIONS.—To the Laundry at the Cottage Homes, Hornchurch, near Romford, Essex, for the Guardians of the Poor of the Parish of Saint Leonard, Shoreditch. Guardians' Architect, F. Danby Smith, F.R.I.B.A., Parliament Mansions, Victoria-street, Westminster, S.W.1. Deposit £2 in Treasury notes.

JULY 28.—**Southampton.** — SCHOOL. — Remodelling of Beaulieu Council school, including the erection of new cloakroom, verandah and offices, &c., for the County Council. A. L. Roberts, County Architect, The Castle, Winchester. Deposit £1 1s., by cheque, payable to the Hants County Council, and crossed "Lloyds Bank, Ltd., Capital and Counties Branch, Winchester."

JULY 28. — **Wembley.** — COTTAGES, &c. — Erection of thirty brick-built cottages and twenty flatted cottages, in the extension of the Christchurch estate, Ealing-road, for the Wembley U.D.C. Cecil R. W. Chapman, Engineer and Surveyor, Council Offices, Wembley. Deposit £2 2s.

JULY 31.—**Bellerby.**—PAINTING.—Painting and decorating Bellerby Church interior. Rev. C. A. White, Bellerby Vicarage, Leyburn, S.O.

JULY 31.—**Gateshead.**—HOUSES.—204 Houses at Bensham Housing estate, for the C.B. Housing Department, Swinburne-street.

JULY 31.—**Worsborough Dale.**—ADDITIONS.—Alterations and additions to the Wesleyan Chapel. W. Beckett, "Hillcrest," Ward Green, near Barnsley. Deposit, £1 1s.

AUGUST 2.—**Glasgow.**—RECONSTRUCTION.—Demolition and reconstruction of a double cottage at Standhill, near Bathgate, for the T.C. D. A. Donald, Chief Engineer, 271, Alexandra-parade.

AUGUST 5. — **Glasgow.** — TENEMENTS. — Fifty-five tenements, comprising 330 houses, at Possil, for the T.C. J. Lindsay, Town Clerk.

AUGUST 5.—**Kilkeel.**—LIGHTING.—For (*a*) cold starting crude oil engine; (*b*) generator, booster and switchboard; (*c*) storage battery; (*d*) pole erection work; (*e*) line erection work; (*f*) erection of power house, for the R.D.C. P. T. White, consulting engineer, 50, Queen-street, Newry. Deposit £1 1s.

✱AUGUST 12.—**Keynsham, near Bristol.**—HOUSES.—Erection of 20 semi-detached parlour-type houses, six in the parish of Saltford and 14 in the parish of Whitchurch, on the Council's housing estate, comprising two types of houses in each case. H. W. Argile, Building Surveyor, 16, High-street, Keynsham. Deposit, ½ guinea in each case, by cheque.

AUGUST 14.—**Windsor.**—COTTAGES.—Pair of semi-detached cottages on land adjoining the pumping station at Blacknest, Sunninghill, Berks, and one detached cottage near the sewage purification works at Whitmoor Bog, for the R.D.C. J. H. Blizard, M.Inst.C.E. Deposit £2 2s.

NO DATE.—**Newton.**—HOUSES.—Houses in the Newtown district. T. Taylor Scott, F.R.I.B.A., architect and surveyor, 36, Lowther street, Carlisle.

NO DATE.—**Outwood.**—PAINTING.—Painting and decorating the Wesleyan church and schools, Outwood, near Wakefield. Garside & Pennington, architects and surveyors, Pontefract.

✱NO DATE. — **Rawmarsh.** — HOUSES. — Erection of 61, to be built on the Haughdale-road housing site, for the Rawmarsh U.D.C. Jeffrey A. Tonge, L.R.I.B.A., Chartered Architect, Council Offices, Parkgate, Yorkshire. Deposit £1 1s.

MATERIALS, etc.

JULY 22.—**Lichfield.**—CEMENT.—Portland cement, for the R.D.C. Engineer and Surveyor.

JULY 23.—**Ireland.**—WINDOWS.—180 timber framed windows, glazed and finished complete for openings of total external area of about 5,427 sq. ft., for the Commissioners of Public Works. J. J. Healy, Secretary, Oifig Oibreach Puibli (Office of Public Works), Baile Atha Cliath (Dublin). Deposit £1.

JULY 31.—**Haslemere.**—MATERIALS.—425 tons 2½ in. gauge granite, 476 tons 2½ in. to ½ in. graded tarmacadam, 60 tons ½ in. gauge tarmacadam, and 75 tons ¼ in. gauge tarmacadam, for the U.D.C. C. A. Best, surveyor.

JULY 27.—**Pontefract.**—PIPES.—Fifty tons of 4 in. diameter cast-iron pipes, for the T.C. W. H. Newton, Borough Engineer and Surveyor.

ENGINEERING, IRON AND STEEL.

JULY 19.—**Epsom.**—DRAINAGE.—Construction of purification works, consisting of screen chamber, four settlement tanks, four bacterial filters, three humus tanks, sludge pumping station, effluent pipe and other works, at the sewage treatment works, near Worcester Park Station, for the R.D.C. J. Taylor & Sons, engineers, Caxton House, Westminster, S.W.1. Deposit £5.

JULY 19.—**Epsom.**—RESERVOIR.—Reinforced concrete service reservoir to contain two million gallons, complete with valve house and the necessary pipe connections on land adjoining the Council's existing service reservoir at Downs-road, for the U.D.C. W. Vaux Graham, 5, Queen Anne's Gate, Westminster, S.W.1. Deposit £5.

JULY 19.—**Manchester.**—WIDENING.—Of Moston-lane bridge over the L.M. & S. Rly., Moston, for the T.C. City Engineer. Deposit £3 3s.

JULY 19.—**Orpington.**—BRIDGE.—Reconstruction of bridge No. 90 at St. Mary Cray, under the London, Chatham and Dover main line of the Southern Railway, for the M.T. Chief Engineer, Roads Department, 7, Whitehall-gardens, S.W.1. Deposit £25.

JULY 19.—**Wakefield.**—TUNNEL.—Construction of a tunnel, 800 yds. in length, with inlet and outlet basins, at Barkisland, near Sowerby Bridge, for the Waterworks Committee. C. C. Smith, Waterworks Engineer, Town Hall. Deposit £2 2s.

JULY 26.—**Pontefract.**—SYPHON.—Construction of an 18 in. diameter syphon, about 30 ft. in length, under the stream at Bubwith Bridge, for the T.C. W. H. Newton, Borough Engineer and Surveyor. Deposit £1 1s.

JULY 20.—**Northam (Devon).**—ENLARGING.—Work of enlarging the Melbury reservoir, Parkham, for the U.D.C. W. G. Champion, surveyor.

JULY 21.—**Essex.**—RECONSTRUCTION.—Reconstruction of Pleshey Bridge, carrying the road from Great Waltham to Pleshey, for the C.C. W. H. Morgan, Chartered Civil Engineer, County Surveyor, Old Court, Chelmsford.

JULY 22.—**London.**—GIRDERS.—Supply of about 235 tons of steel girders and other iron and steel work, for the G.W.R. F. R. E. Davis, Secretary, Paddington Station. Deposit £2 2s.

JULY 26.—**Penarth.**—WIDENING.—Ferro-concrete construction in the carrying out of the widening of the pier, for the U.D.C. L. G. Mouchel & Partners, Ltd., 36-38, Victoria-street, Westminster, S.W.1. Deposit £5 5s.

AUGUST 2.—**Enniskillen.**—DRAINS.—Construction of new main drains at the Workhouse, and also alternative tenders to include the construction of sewage disposal system, consisting of septic tanks and filter beds, for the B.G. J. Donnelly, M.R.I.A.I., architect, Enniskillen.

AUGUST 10.—**Dublin.**—RECONSTRUCTION.—Reconstruction of an overline bridge at Rush and Lusk station, for the Great Northern Railway (Ireland). F. C. Wallace, secretary, Amiens-street Station. Deposit, £2 2s.

SEPTEMBER 15.—**Siam.**—BRIDGES.—Superstructures of steel railway bridges, for the Administration of the Royal State Railways of Siam, Bangkok. C. P. Sandberg, 40, Grosvenor-gardens, London, S.W.1. Charge £1 10s.

DECEMBER 1.—**Denmark.**—BRIDGE.—Construction of the superstructure, substructure, as well as approach spans, with shore piers, for a double-track railway bridge across Lillebelt, for the Danish State Railways. Danish Legation, London. Deposit, Danish Kroner 500.

ROAD, SEWERAGE, AND WATER WORKS.

JULY 19.—**Baildon.**—SEWER.—Excavation for and the laying of a 9 in. and 6 in. pipe sewer of an approximate length of 400 lineal yards, with the necessary manholes, &c., at Delph Head, Baildon, for the U.D.C. R. Howard Moore, Clerk, Council Offices, Baildon. Deposit £1 1s.

JULY 19.—**Bucklow.**—SEWER.—Construction of 6 in. and 9 in. sewers and a road in connection with Timperley housing scheme, for the R.D.C. R. Curtis Gordon, engineer and surveyor, 25, Station Buildings, Altrincham.

JULY 19.—**Hebden Bridge.**—REPAVING.—Repaving of Hollins-place from Keighley-road to opposite 9, Commercial-street, and paving of Keighley-road from Nutclough to Old Lees-road, for the U.D.C. H. L. Bottomley, Engineer and Surveyor.

JULY 19.—**Howth.**—REPAIRS.—Road repairs, for the U.D.C. F. Higginbotham, surveyor, 3, Clare-street, Dublin.

JULY 19.—**Margate.**—MAINS.—Supplying and laying approximately 361 yds. of 3 in. water main with the necessary hydrants and fittings, on a new housing site at Woolage-green, Womenswold, for the T.C. Borough Engineer and Surveyor, 13, Grosvenor-place. Deposit, £1.

JULY 19.—**Rochford.**—ROAD.—Laying of surface water drainage and making a reinforced concrete road at Great Stambridge, for the R.D.C. A. C. Madge, surveyor, Rayleigh. Deposit £1 1s.

JULY 19.—**Surbiton.**—MAKING-UP.—Of Fuller's-avenue, for the U.D.C. C. E. Shelly, Clerk, Ewell-road.

JULY 19.—**Waterloo-with-Seaforth.**—MAKING-UP.—Excavating and making-up the following back streets with 6 in. Portland cement granite concrete: (1) Back Park-view, Waterloo (rear of Nos. 14-8); (2) back Park-view, Waterloo (rear of Nos. 9-16); (3) back Park-view, Waterloo (rear of Nos. 17-23); (4) back Park-view, Waterloo (rear of Nos. 24-30); (5) back Park-view, Waterloo (rear of Nos. 31-37); (6) back passage (rear of Nos. 41-47, Park-view, and rear of Nos. 23-63, College road), for the U.D.C. J. R. Fothergill, engineer and surveyor.

JULY 20.—**Epsom.**—MAKING-UP.—Making-up of part of Upper Mulgrave-road, Cheam, for the R.D.C. T. E. Ware, surveyor, Waterloo-road.

JULY 20.—**Frimley.**—MAKING-UP.—Of Southwell Park-road, for the U.D.C. Surveyor. Deposit £1 1s.

JULY 20.—**Ilkeston.**—STREET WORKS.—Forming, kerbing, channelling, paving, metalling, draining and making-up Manor-road, Manners-avenue, Tutin-street, William-street, backway rear of Mill-street, and laying-out and completing a new road from West End-drive to Derby-road, for the T.C. G. Smith, Borough Surveyor. Deposit £1 1s.

JULY 20.—**Tottenham.**—MAKING-UP.—Of Crowland-road (3rd section), for the U.D.C. Engineer. Charge 10s. 6d.

JULY 20.—**Woodford.**—MAKING-UP.—Kerbing, channelling and making-up portion of King's-avenue, for the U.D.C. A. D. Ward, surveyor

JULY 21.—**Ammanford.**—SEWERS.—Work of connecting up house property in the district to the Council's sewers, for the U.D.C. S. H. Davies, College-street.

JULY 21.—**Ebbw Vale.**—FOUNDATIONS.—Taking up the existing surface and laying a 6 in. concrete foundation and other incidental work thereto at Market-street, for the U.D.C. P. I. Davies, engineer and surveyor. Deposit £2.

JULY 21.—**Glamorgan.**—WIDENING.—Widening and diversion of Waterton-lane between Coychurch and the Cardiff Swansea main road, for the C.C. T. Mansel Franklen, Clerk of the C.C., Glamorgan County Hall, Cardiff.

JULY 21.—**London.**—REPAVING.—Repaving of footways, Uxbridge-road, with 2½ in. "non-slip" artificial paving, an approximate area of 10,885 super yards, for the Hammersmith B.C. R. Hampton Clucas, Engineer and Surveyor, Town Hall, Hammersmith, W.6.

JULY 21.—**Rathdown.**—SEWER.—Construction of sewer at Shankill, for the R.D.C. P. H. McCarthy, 26, Lower Leeson-street, Dublin. Deposit £1 1s.

JULY 22.—**Doncaster.**—MAKING-UP.—Of Sunnymede-avenue and Sunnymede-terrace, for the R.D.C. W. R. Crabtree, surveyor.

JULY 23.—**Frimley.**—SEWER.—Laying of a 9 in. sewer in Hatches-lane, Frimley Green, for the U.D.C. Surveyor, Municipal Buildings, Camberley.

JULY 23.—**Merton and Morden.**—MAKING-UP.—For (*a*) Road widening at junction of High-street and Morden-road, Merton; and (*b*) sewer construction, High-path, Merton, for the U.D.C. G. Jerram, surveyor, Kingston-road, Merton, S.W. 19. Deposit, £1 1s.

JULY 24.—**South Shields.**—ROAD.—Construction of abutments for new bridge over the Harton Coal Co.'s railway at Marsden, for the C.B. S. G. Stanton, Borough Engineer. Deposit £2 2s.

JULY 24.—**Sutherland.**—WIDENING.—For (1) Widening, resurfacing, and bottoming 2½ miles of road near Lochinver; (2) resurfacing and tar spraying 6 miles of road between Inveran and Invernauld; (3) tar spraying various main roads, approximate area 140,000 sq. yds.; (4) construction of a bridge (two spans of 20 ft.) on Stratmore-road, for the C.C. County Road Surveyor, Golspie.

JULY 24.—**Teddington.**—WIDENING.—Work in connection with widening and improving Park-road, for the U.D.C. Marshall Hainsworth, surveyor. Deposit, £2 2s.

JULY 26.—**Bray.**—MAINS.—Providing and laying down of water mains, fittings and accessories, at Killarney-road, for the Wicklow County Board of Public Health. R. M. Butler, F.R.I.B.A., 23, Kildare-street, Dublin.

JULY 26.—**Glasgow.**—SEWER.—Brick sewer in Aitkenhead-road and Glebe-road, for the T.C. J. Lindsay, Town Clerk.

JULY 26.—**Manchester.**—RECONSTRUCTION.—Reconstruction with granite sets on a concrete foundation:—Sackville-street, City, and C.-on.-M., from Granby-row to Mount-street; Tariff-street, City, from Dale-street to Brewer-street; Upper Stanley-street, City, from Brewer-street to Leech-street, and Fairfield-street, City, northerly side, from Travis-street to River Medlock, for the T.C. P. M. Heath, Town Clerk. Deposit £1 1s.

JULY 26.—**Uttoxeter.**—PAVING.—Laying of granite setts on a concrete foundation in Bridge-street, with all necessary preparatory work, for the U.D.C. S. S. Proud, engineer and surveyor. Deposit, £1.

JULY 27.—**Billericay.**—SEWERS.—Construction of sewers, manholes, and incidental work in the private streets of the first portion of the Sunnymede estate, Great Burstead, for the R.D.C. Surveyor, High-street. Deposit £2 2s.

JULY 27.—**Clown.**—EXTENSION.—Laying about four thousand yards of 6 in. and 4 in. cast-iron mains from Barlborough to Spinkhill, for the R.D.C. G. & F. W. Hodson, engineers, Bank Chambers, Loughborough. Deposit £5.

JULY 27.—**Gateshead.**—IMPROVEMENTS.—Diversion of road and footpath, excavation and trimming of the river bank, and the construction of a sloping river wall, &c., at Tyne Main, Gateshead, for the Improvements Commission. A. Blacklock, secretary, Tyne Improvement Commission Offices, Bewick-street, Newcastle-upon-Tyne. Deposit £2 2s.

JULY 28.—**Great Crosby.**—RECONSTRUCTION.—Reconstruction of a portion of Liverpool-road, which comprises the laying of 10,000 yds. of asphalt carpeting and concrete foundation, flagged footways, and other incidental works, for the U.D.C. J. A. Wright, surveyor. Deposit £2 2s.

JULY 28.—**Haslemere.**—MAKING-UP.—Of Derby-road, Church-road, for the U.D.C. C. A. Best, surveyor, West-street. Deposit £1 1s.

JULY 31.—**Greenock.**—WATER SUPPLY.—Construction of a filter, supplying, laying and jointing cast-iron pipes, valves, special castings, fireclay pipes, cutting and filling trenches, and other relative work, at Smithston, for the P.C. Geo. R. Blake, C.E., 88, Great Clyde-steet, Glasgow. Deposit £1 1s.

AUGUST 3.—**New Hunstanton.**—MAKING-UP.—Of a portion of Sandringham-road, for the length of approximately 585 lin. yards, for the U.D.C. F. Wilkinson, engineer and surveyor.

Competitions.

(*See Competition News page* 80.)

Auction Sales, Tenders, etc.

JULY 21.—**Isle of Grain.**—H. & R. L. Cobb, amalgamated with Daniel Smith, Oakley & Garrard, will sell on the premises, Isle of Grain Aerodrome, where facilities for water, rail and road transports are immediately available, valuable machinery and building materials. Auctioneers, 4 and 5, Charles-street, St. James's-square, S.W.2, and Cathedral Chambers, Rochester.

JULY 21.—**London.**—St. Quintin, Son & Stanley will submit for letting by auction, by order of the City Lands Committee of the Corporation of the City of London, building site now occupied by premises known as Nos. 40 and 40A, King William-street. Auctioneers, 34, Clement's-lane, Lombard-street, E.C.4.

JULY 22.—**London.**—Hampton & Sons will sell (unless previously sold) in the St. James's-square Estate Rooms, freehold building property of over 22½ acres between Newhaven and Peacehaven. Auctioneers, 20, St. James's-square, S.W.1.

JULY 22.—**London.**—Knight, Frank & Rutley will sell, as a whole or in lots, freehold residential and building estate known as Little Heath Wood, comprising a commodious country house, building land frontage about 4,100 ft.; the whole extends to an area of about 43½ acres, with vacant possession. Auctioneers, 20, Hanover-square, W.1.

JULY 27, 28 AND 29.—**Glossop.**—William Davies & Son will sell in conjunction with Perry & Phillips, on the premises, Glossop Hall, the whole of the valuable interior and exterior fixtures and fittings previous to demolition of the mansion. Auctioneers, W. D. & Son, 9, Albert-square, Manchester, or P. & P., High-street, Bridgnorth.

JULY 28.—**St. Albans.**—Stimpson, Lock & Vince will sell, at the "Pea Hen" Hotel, St. Albans (unless sold privately in the meantime), freehold mansion, "Marshalswick," St. Albans, comprising 23 bedrooms, &c., to be sold for conversion into school, hotel, &c.; also 50 acres of building land in convenient parcels. Auctioneers, 35, Chequer-street, St. Albans.

SEPTEMBER NEXT.—**London.**—Knight, Frank & Rutley will sell at the Hanover-square Estate Room (unless previously sold privately), freehold residential and building estate, known as Greenhill Park, Barnet, residence, lodge, &c. Auctioneers, 20, Hanover-square, W.1.

✱NO DATE.—**Surrey.**—Goodman & Mann will sell, by direction of Messrs. B. Ingram & Co., who are retiring from business, the valuable freehold business premises known as Ingram's-yard, Queens-road, Hersham, near Walton-on-Thames, Surrey. At the same time will be sold builders' plant and materials. Auctioneers, East Molesey and Esher.

Public Appointments.

✱JULY 18.—**London.**—Town-Planning Assistant required for a period of three months by the Corporation of Wimbledon. Herbert Emerson Smith, LL.B., Town Clerk, Town Hall, Wimbledon, S.W.19.

✱JULY 19.—**London.**—Clerk of Works required by the Lewisham Borough Council in connection with the Grove Park Housing Scheme. John W. Shuter, Town Hall, Catford, S.E.6.

✱JULY 26.—**Edmonton.**—General Foreman (Trade Unionist) required by the Education Committee to act under the direction of the Architect during the construction of two practical instruction centres (brick buildings) at two schools. E. O. Taylor, Director and Secretary, Education Offices, Brettenham-road, N.18.

✱JULY 27.—**Acton.**—Temporary Town Planning Assistant required by the Borough Council. Borough Engineer, Municipal Offices, Acton, W.3.

✱JULY 29.—**Burley-in-Wharfedale.**—Clerk of Works required in connection with the erection of 54 houses for the U.D.C. Council's Surveyor, Council Offices, Burley-in-Wharfedale.

JULY 31.—**Rangoon.**—EXECUTIVE CIVIL ENGINEER.—Required by the Rangoon Development Trust. The engagement in the first instance will be for a period of three years, but it is possible that a permanent appointment may follow. J. Lumsden Rae (Reference R.2530), Dartmouth House, 2, Queen Anne's-gate, London, S.W.1.

Notice of Removal.

The new works and head offices constructed for the British Reinforced Concrete Engineering Co. at Stafford are now complete. The removal of the head offices from Manchester took place on May 22 and the removal of the works will be extended over a period of some months so that there will be no interference with the speed of manufacture and the prompt deliveries of the Company's products.

"The Roadmaker."

The June issue of *The Roadmaker*, issued by the British Reinforced Concrete Engineering Co., Ltd., contains a number of interesting articles, including "Concrete Roads in Bath and a Few Observations Thereon," by J. Owens, M.Inst.M and Cy.E.; "Imposing Streets.—No. I: Whitehall," and "The History of Bristol—Its Roads and Bridges," by T. B. Cooper, B.Sc., A.M.I.C.E.

PROPOSED NEW BUILDINGS & OTHER WORKS*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B.E. for Board of Education; M.A.B. for Metropolitan Asylums Board; and M.W.B. for Metropolitan Water Board.

BANBURY.—The T.C. recommend that, subject to the approval of the M.H., tenders be invited for 74 houses of the non-parlour type and 12 of the parlour type be erected in Springfield-avenue.

BEBSIDE.—The L. & N.E.R. Co. are seeking permission to replace the existing timber viaduct over the River Blyth between Bebside and Bedlington with a steel viaduct.

BIRKENHEAD.—A site in Borough road is suggested for the erection of new offices for the water department. Sanction has been obtained for a loan of £1,784 for the purchase of land in Albany-road for the erection of a police station. Rock Ferry pier is to be re-decked, at a cost of £1,750.—Approval has been given to revised plans of Messrs. Hannaford & Tearle, who secured the first premium designs, for the erection of the new art gallery, and tenders are shortly to be invited.—Sites at Eastham, Moreton and Prenton are to be obtained for the erection of electricity sub-stations.—The Estates Committee recommend the purchase of the Roydon estate of 450 acres at £150 per acre for housing and other purposes.—In sanctioning a loan of £109,000 for the erection of an additional 200 houses on the Tranmere Hall estate, the M.H. intimate the desirability that the prices obtained should be firm for labour and material—The Borough Engineer has prepared plans for 34 houses on the Dell estate, and tenders for erection are to be invited.—The Borough Engineer is to prepare plans for 30 non-parlour houses on the Thorncote estate.—Approval has been given for sites for rehousing schemes, the proposal being to erect flats. Estimates are to be prepared for reconditioning Queen's Buildings for housing purposes.—Approval has been given to preliminary plans for the erection of an elementary school at Cole-lane.

BLACKPOOL.—The C.B. passed plans: Thirteen houses, Sutherland-road, for J. R. Fielding; 8 houses, Branstone-road, for C. Harding & Sons; new streets, Rosebery-avenue, for Leach & Unsworth; 28 houses, off Vicarage-lane, for E. Lumb; 8 houses, Harris-avenue, for Leach & Unsworth; 9 houses, Devonshire-road, for E. Midgley; new streets, off Bloomfield-road, and 16 houses, for Beardshaw & Boardman; 43 houses, Ellesmere-road, for Lancs. Construction Co.; 63 houses, Powell-avenue, for Edmondson & Colwell; 34 houses, Warley-road, for R. Fielding & Son; 14 houses, Poulton New-road, G. Eaves.

BOLTON.—The E.C. has approved the plans of D. Wynne Thomas, architect, for adapting premises at Lostock for an open-air school.—A site at the Moorfield estate is recommended for the erection of a branch library.—The Borough Engineer has prepared schemes for improvements at the police stations at Abingdon-road and Middle Hulton.—Land near Woodstock-drive is to be acquired for an open space.—Plans are to be prepared for new offices for the Gas Committee.—Seven acres at Higher Swan-lane are being purchased for a housing scheme.—Approval has been given to the revised plans of A. J. Hope, architect, for the new police buildings and court house.

BRADFORD.—The Corporation are to provide more accommodation at Windsor baths at a cost of £325, and cloak room accommodation is to be extended at a cost of £100.—Shop premises are to be erected on land at Thornton-road by the City of Bradford Co-operative Society.—Messrs. Wynter Bros. & Co., Ltd., are to extend their works at Low Green-terrace.—The E.C. are inquiring for sites for open-air schools.—A site is being obtained in the Swain House district for the erection of an elementary school.—It is recommended that a site allocated at Wyke for the erection of an industrial school should now be used for an open-air school.—In connection with the proposed elementary school at Bolling Hill it has been decided that it will be more economical to build a school for 600 than one for 400 and extend it later.—The old hall on the Myra Shaw estate is to be converted into a pavilion.—The E.C. has now acquired a site at Leaventhorpe-lane, Thornton, for the erection of a grammar school.—The Myopes School, Daisy Hill, is to be enlarged at a cost of about £2,000.—Plans have been approved for the provision of new departments at Margaret McMillan school, at a cost of £13,000.—Approval has been given by the M.H. to the proposal for the erection of 600 houses, subject to reasonable prices being obtained.

BRISTOL.—The directors of the Refuge Assurance Co., Ltd., whose head office is at Oxford street, Manchester, have secured a site on Castle street, where they propose to erect new district offices. The plans are being prepared by S. Birkett, A.R.I.B.A., architect, 16, John Dalton-street, Manchester.

BURTON-ON-TRENT.—Additional lavatory accommodation is to be provided at the wholesale market, at a cost of about £500, and the Borough Engineer is to obtain tenders.—A grant of £1,500 has been made to the Consolidated Charity Trustees for the provision of tiled dados at the new Girls' High School.

CARLETON.—In connection with the new church scheme, an offer of land has been made, and it is proposed to erect a building which can be used for a church or a Sunday school.

CARLISLE.—The Corporation have now arranged for the acquisition of the present site for street improvement purposes, a site being reserved for the erection of county offices.—Mr. H. Foxhall, architect, is to erect buildings for Messrs. Robinson Bros. (Carlisle), Ltd., in St. Cuthbert's-lane.—The Salvation Army have acquired a site adjoining St. Nicholas-street for the erection of buildings.

CARNARVON.—The Borough Engineer is to prepare plans for a convenience in Castle-square.—Mr. Watkin W. Jones has prepared plans for 26 houses on the new estate, and tenders are to be invited.—Tenders are to be obtained for the erection of conveniences in the Pavilion Field.

CHELTENHAM.—The T.C. has decided to employ an architect to prepare plans for a complete set of medical baths in connection with the Winter Gardens.—The Council also decided to proceed with a scheme for improving the land adjacent to the Chelt, at a cost not exceeding £10,000.

CHERTSEY.—The U.D.C. has decided to make application to the Ministry for approval of two housing schemes for subsidy purposes, and, subject to the Ministry's approval, for a loan of £29,980.

CHESTERFIELD.—The Watch Committee has decided to approach the Home Secretary for approval to the transfer of the police headquarters to the new Fire Station building. Plans for altering the old Municipal Hall for the purpose of a Police Court have been approved, and also plans for new cells. These will cost, it is estimated, £2,200, and a loan is to be applied for.

CLEVELEYS.—Mr. A. A. Holt, builder and contractor, Beach-road, Blackpool, has had plans approved by the Thornton U.D.C. for the erection of 12 semi-detached houses in the Grove, Cleveleys.

COALVILLE.—The Leicestershire E.C. have given notice of their intention to provide a new elementary school to accommodate 200 senior scholars.

COCKERMOUTH.—Cumberland E.C. propose to take over the Industrial School for conversion into a secondary school.

CONWAY.—The Bridge Commissioners are considering a scheme for an additional gateway to Conway Bridge, on the Conway side.

DARWEN.—In an endeavour to re-house the families by the demolition of insanitary property in the Bury-street area, it is proposed to erect 50 dwellings, and application is to be made to the M.H.

DORCHESTER.—The R.D.C. has received the M.H. sanction to a loan of £6,290 for the Malden Newton-houses.

DOUGLAS (I. OF M.).—The Corporation has made application to borrow £5,145 for the erection of a further 10 houses on the Hill's estate.

DUDLEY.—Messrs. Julia Hanson & Sons have bought land at Brewery Fields for building purposes.—A committee has been appointed to inspect the walls of Dudley Castle with plenary power to authorise the necessary repairs.—The Borough Engineer has been authorised to obtain tenders for the main works of the new swimming baths.

DURHAM.—A scheme for the conveying of the sewerage from the large colliery villages of Thornley, Wheatley Hill, and Shotton has been adopted by the Easington Council and approved by the M.H. The estimated cost is £42,000.

EASTBOURNE.—The Borough Engineer has prepared a tentative lay-out of houses for erection on land near the electricity works.

EDMONTON.—The U.D.C. has approved plans: North Metropolitan Electric Power Supply Co., two sub-stations at the Angel Factory Colony, Angel-road, and E. E. Yates, 45 bungalows, in Ash-grove, Crossway, and Manor-way, Bush Hill-park.

ELLESMERE PORT.—The U.D.C. has instructed their surveyor to prepare plans, specifications, and estimates for 500 houses, to be erected on the Stud Farm and Flar-lane estates.

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FERRYHILL.—Plans have been passed for a new church. The architect, Mr. A. Harrison, of Stockton, is also engaged on a new school at Ryhope. A school to cost £6,000 is to be provided at Felling. Consett has a new junior school scheme, and Stanley school managers are arranging for the opening of a central school. Other building schemes in progress include a new church at Whitley Bay, a new infant's school for 260 children for St. Benet's parish, Monkwearmouth, and an enlargement of the school in St. Patrick's parish, Sunderland, to cost over £3,000. The new school for St. Benet's will have a special classroom for Montessori teaching, and in addition to this, the old infants' school will be remodelled so as to provide 160 additional places. The total cost of the entire scheme will be £10,000.

GATESHEAD.—The T.C. has decided to erect a new school for 790 children in King Edward-street, and a new Carr Hill Council school, and to enlarge the Wrekenton Council school. An open-air school is to be constructed at Whinney House.

GRANTHAM.—The T. C. has received the M.H. approval to proceed with the erection of thirty houses on the Dysart-road site. The Ministry has raised no objection to the acceptance of G. Kettle's tender, amounting to £460 per house, for the scheme.

GREETLAND.—The Council are proposing to spend £3,070 on alterations to Clay House.

GUILDFORD.—Plans have been approved for the erection of additions to the branch premises in High-street, with alterations to the existing ones for Lloyds Bank, Ltd., London. Mr. J. P. Briggs, Effingham House, Arundel-street, W.C., has prepared the plans.

HALIFAX.—The T.C. passed plans for 45 semi-detached houses, for E. Richardson, on the Pye Nest estate.

HARROGATE.—The T.C. are considering a resolution to apply for sanction to borrow £26,680 for 46 additional non-parlour houses on the Ripon-road estate.

HASTINGS.—Plummer Roddis, Ltd., drapers, of Pinners Hall, Austin Friars, E.C.2, have made an issue of £3.0,000 Preference shares to provide funds for the rebuilding of their large emporium.

HEMSWORTH.—The R.D.C. are being urged to erect 30 additional houses on the Westfield lane estate, at an estimated cost of £450 each for non parlour type and £460 each for parlour type.

HENDON.—The U.D.C. passed plans: Seven houses, Brampton-grove, for Welch & Hollis, and nine garages, Shirehall-park and Shirehall-lane, for C. B. Heygate.

HIGHBRIDGE.—The U.D. C. are to invite tenders for the erection of the public convenience in Church-street.

HOOK (SURREY).—Over £1,700 has now been received towards the cost of erecting a new parish hall.

HOVE.—The T.C. has decided to purchase 53 acres of land in the north-west of the borough, from the Brighton Corporation, for the purpose of another housing scheme.

HULL.—The T.C. passed plans: G. H. Needler, 10 parlour-type houses, Brindley-street; P. Cheeseman, 6 non-parlour type houses, Ryde-avenue; W. H. Loveridge, 60 parlour-type houses, New-street, Chanterlands-avenue; R. W. Trigg, 20 parlour-type houses, Somme-street; and 4 parlour-type houses, Alsne-street.

KEYNSHAM.—The R. D.C. is to invite tenders for the erection of 20 houses on the Brislington site.

KNUTSFORD.—A supplementary housing scheme has been prepared for the erection of 34 houses on vacant land in Northwich road, for the Council.

LANCASTER.—The Corporation are considering the establishment of a central smallpox hospital for Lancaster, Morecambe, Hersham and Carnforth.—Tenders are to be invited for the erection of 85 houses on the Caton-road estate.

LEEDS.—The T.C. passed plans: C. Higgins, 8 semi-detached houses, Montreal-avenue, Chapel-Allerton Hall estate; N. & R. Webster, 6 semi-detached houses, Ring-road, Moortown; J. Barker, 19 houses, Nowell-walk, parade, and avenue, Harehills; F. B. Lax, 12 semi-detached houses, Scott Hall-road and King-lane, Moortown; C. H. & F. Lax, 14 semi-detached houses, Easterly-crescent, Harehills; Lazenby Bros., 16 semi-detached houses, Broomfield-crescent estate, Headingley, and 24 semi-detached houses, Stainbeck-lane and Scott Hall-road, Chapel-Allerton; A. Smith, 16 semi-detached houses, East Row, Armley Grange estate; A. Wilkinson, 8 semi-detached houses, Wensley-crescent, Stainbeck-lane.

LONDON.—The L.C.C. has decided, subject to certain conditions, to offer no objection to the execution of certain alterations to the undermentioned places of public entertainment: Academy Cinema, 139 and 141, King-street, Hammersmith, provision of platform and false proscenium; Bethnal Green public baths, Old Ford-road, rearrangement of exits from first-class bath; Broadway Theatre, Deptford, provision of additional exit staircase from gallery; Carlton Theatre, Haymarket, provision of heating and ventilating installation; Chelsea Palace, provision of saloon bar and rearrangement of sanitary conveniences; Devonshire Court, Mayfair, provision of heating and ventilating installation; Devonshire Hall, Devonshire-road, Hackney, extension of dining-room and provision of new kitchen; Foresters' Music Hall, provision of electrical and heating and ventilating installations; Globe Cinema, 59 and 61, Old Kent-road, various structural alterations, provision of heating and ventilating installation; Grand Central Cinema, 54 and 55, Blackfriars-road, provision of platform and false proscenium; Grand Cinema, 280 to 284, Edgware-road, provision of electrical installation; Imperial Theatre, 9, St. John's-hill, Battersea, alterations with a view to use of part of upper floors as social club; Kingsway Hall, rearrangement and extension of sanitary accommodation; Lavington-street baths, provision of new staircase, &c.; Lever House, Blackfriars, alterations to hall at basement level; London Ice Club Skating Rink, Grosvenor-road, provision of heating and ventilating installation; Old Kent Picture House, Nos. 42 and 44, Old Kent-road, extensive structural alterations; Polytechnic,

* See also our List of Contracts, Competitions, etc.

Regent-street, alterations to cinematograph hall; Putney Palace Theatre, 23, High-street, Putney, reconstruction of premises, provision of heating and ventilating installation; and Standard Cinema, 153 to 157, Goldsmith's-row, Hackney, extensive structural alterations.

LONDON (BATTERSEA).—The L.C.C. recommend the borrowing by the B.C. of an amount not exceeding £11,633 for wharf works.

LONDON (CHELSEA).—The L.C.C. recommend the borrowing by the B.C. of £19,400 for the acquisition of a site within the borough for housing purposes.

LONDON (CHISWICK).—The U.D.C. has passed plans for 38 garages in Sutton Court road, for F. H. Harrison.

LONDON (LEWISHAM).—A tender of £72,184 for the erection of 134 Council houses at Lewisham has been accepted.

LONDON (POPLAR).—A new clinic is to be built in the Isle of Dogs.

LONDON (ST. MARYLEBONE).—The L.C.C. recommend the borrowing by the B.C. of £35,468 for housing.

LONDON (ST. PANCRAS).—The B.C. recommend that, subject to all necessary consents being obtained, the B.C. approve the acquisition of a site for the purpose of a new sub-station in the sum of £2,765.

MANCHESTER.—Mr. F. W. Lowcock, 229, High-street, Pendleton, has acquired a site with frontages on Broad-street and Banks-street, Pendleton, where he proposes to erect 10 lock-up garages and two service garages, with accommodation for 16 cars. The plans have been prepared by F. Riley, A.R.I.B.A., 4, Cannon-street, Manchester. The steelwork will be supplied by J. Bennett & Sons, constructional engineers, 16, Deansgate. Tenders for the building work will be invited.—Sites for elementary schools are being reserved on the Withington and Kingsway housing estates.—The M.H. has sanctioned the proposals for the erection of a further 3,000 houses.—The Housing Committee are to proceed with the erection of houses on the Withington estate with diatomite slabs.

MIDDLESBOROUGH.—Plans have been approved by the T.C.: Seven terrace houses in Chipchase-road, for T. P. Price, and 18 terrace houses, Tavistock-road, for J. Dean.

NELSON.—Plnas and estimates for the proposed new secondary school at Hole House Farm have now been approved by the Higher E.C. of the Lancashire C.C.. It is intended to provide accommodation for 450 mixed scholars with provision for future extensions, bringing the total accommodation to 500. The scheme is estimated to cost £64,240.

NEWPORT (ISLE OF WIGHT).—The Corporation has obtained sanction to borrow £4,000 for the extension of the quay wall. The Corporation are to proceed with the lay-out of the new market area, and tenders are to be invited for the erection of the poultry house.

NORTHAMPTON.—Plans are to be prepared for 50 houses on the Duston site, with a view to inviting tenders.

OLDHAM.—The Borough Engineer is to prepare plans for the reconstruction of the convenience in Brewerton-road.—The M.H. are again to be interviewed regarding modified plans for the adaptation of Greenacres Lodge as a maternity home.—The M.H. has approved the scheme for the erection of 300 houses on the Barrow-shaw–Greenacres site.—The C.B. passed plans: Trustees of Beulah Baptist Church, new classrooms, kitchen and w.c.'s, Withins-road; T. C. Lees, 10 houses and one lock-up shop, Ripponden-road; Guardians of the Poor, mortuary, post-mortem room, &c., Union Workhouse; Werneth Cricket Club, tennis pavilion, Cecil-street.—Plans are in preparation for the erection of a waterman's house near the new reservoirs at Blackstone Edge, to contain also a committee room and storeroom, at an estimated cost of £3,500.

OSSETT.—The Borough Engineer is to prepare plans for a new warehouse for Messrs. Secker & Machill, in connection with the new road scheme off Market place.

OTLEY.—The U.D.C. are borrowing £2,000 for the lay-out of the Harefield housing estate.

OXFORD.—The T.C. has received from the M.H. approval to the acceptance of the tender of W. H. Jones & Son (Housing), Ltd., for the erection of 76 houses of the Denis Wild type, at a cost of £459 each on the Weirs-lane South site.

PENMAENMAWR.—The U.D.C. are to proceed with 32 houses on the Cwm site.

PENWORTHAM.—Funds are being raised by the members of the Congregational Church for the erection of a new church, estimated to cost £4,000, for which a site has been acquired on Liverpool roads.

PONTEFRACT.—The Corporation has approved plans for the erection of 274 houses, including 60 of the parlour type and 214 non-parlour, at an estimated cost varying from £497 to £542 each, on the Baghill Estate, and accepted a tender for the construction of roads and sewers, at a total cost of £12,799.—The Council has resolved to build two new elementary schools on the Baghill housing estate for the accommodation of 550 scholars.

RICKMANSWORTH.—The governors of the Royal Masonic Institution for Girls have decided to purchase the Rickmansworth Park estate, of 204 acres, for the purpose of rebuilding and extending the senior school now at Clapham Common, S.W. Mr. A. Burnett Brown, Grand Superintendent of Works, Freemason's Hall, Great Queen-street, W.C.2.

ROCHFORD.—The R.D.C. has decided to build twelve parlour and twelve non-parlour type houses on the Malting's land site.

ROWLEY REGIS.—The U.D.C. has decided to proceed with the erection of 62 municipal houses at Silverthorne lane, Cradley Heath.

ST. IVES.—The surveyor of the T.C. has prepared a scheme for the erection of 50 houses of the parlour type in the neighbourhood of the Recreation Ground.

SHEFFIELD.—The M.H. has sanctioned the scheme for the erection of the Ledingham laboratory at King Edward Hospital.—Approval has been given to the preliminary plans of the City Architect for the lay-out of Longley estate, providing for the erection of 2,000 houses.—Approval has been given to plans for the erection of five conveniences at various parts of the city.

SIDCUP.—Over 140 acres of suburban building land is to be sold this month at Chislehurst, near the Sidcup by-pass road. Messrs. D. Smith, Oakley & Garratd, surveyors, Charless-treet, St. James's square, S.W.1.

SMETHWICK.—Mr. William Lees is to erect 26 subsidy houses in White-road.

SOUTH SHIELDS.—A grant is to be sought for the construction of a convenience on the South Foreshore. Messrs. J. T. Armstrong & Son are laying out an estate off Harton road for the erection of 40 houses. Messrs. George Thornton & Co. are to erect 26 houses on an estate off Reading road. A further 2,000 privies are to be converted at a cost of £16,000. A site at Stanhope-road is being secured for the erection of a branch library. The Borough Engineer is to report as to the cost of the construction of a bridge to connect East and West Keppel-streets.—The T.C. passed plans: H. Hill, for J. T. Armstrong & Son, 18 semi-detached houses, Harton-lane, between Howard-avenue and a new 30 ft. road to the west; Davidson, Son & Sherwood, 6 semi-detached bungalows in Central-gardens and South-avenue, Harton, and 3 more semi-detached bungalows in Central-gardens, Harton.

STAFFORD.—The Housing Committee of the T.C. propose to erect 65 houses—52 of the non-parlour type on the Tithe Barn estate, and 13 in North Walls—at a total cost of £28,000.

SUBURBAN.—Negotiations are proceeding for the acquisition of an estate of about 25 acres to be developed co-operatively to the advantage of future residents by the erection of bungalows, houses, gardens, bowling greens, tennis courts, &c. Messrs. Edward Jones & Co., surveyors, 61, St. James's-street, S.W.1.

SUNDERLAND.—The proposal to erect a salt-water swimming pool at Roker has been considered again by the Markets and Baths Committee of Sunderland Corporation.

SUTTON COLDFIELD.—The T.C. passed plans: 12 houses, College-road, New Oscott, for Cox, Whodcoat & Taylor; 10 houses, Upper Holland-road, for Mrs. R. Hill.

THORNTON.—Representatives of the Blackpool and Lytham St. Annes Town Councils, the Urban District Councils of Fleetwood, Thornton, Poulton, and Preesall, and the Rural Districts of Garstang and Fylde, have held a meeting for the purpose of discussing the construction of a new bridge over the River Wyre. The following resolution was passed: "That in the opinion of this conference it is necessary, in order to provide for the need of vehicular traffic, that a new bridge be constructed over the River Wyre, north of the present Shard Bridge." Various sites suggested were discussed, after which the representatives inspected the land on each side of the river, and unanimously agreed that the best position for a bridge was at a point immediately north of Wardleys Hotel.

TORQUAY.—The Corporation are considering the acquisition of part of the Babbacombe Court estate. Approval has been given to plans for the Pimlico area improvement scheme. The Pavilion Café roof is to be repaired at a cost of £200. Plans have been prepared for 42 houses at Windmill estate and tenders are to be invited.—The T.C. passed plans: 10 houses, Warberry Vale estate, for H. J. Scoles; transformer sub-station, Lower Lincombe road, for the Electricity Department.

WAKEFIELD.—The Electricity Committee propose to erect new sub-stations at an estimated cost of £10,000. The M.H. has sanctioned borrowing powers of £115,259 in respect of 366 houses to be erected on the Portobello and Lupsett estates. The Corporation are seeking borrowing powers for £24,000 required for erection of 40 houses at Thorne.—Tenders are to be obtained for renovations at the City Fever Hospital.—Tenders are to be obtained for covering the stable yard at Holmfield.

WEDNESBURY.—The Town Council has received the sanction of the M.H. to borrow the sum of £37,825 for the erection of 80 houses on the Churchfields estate.

WHITEHAVEN.—The Borough Engineer has prepared a scheme for the erection of 170 houses on the Bransty and Arrowthwaite sites, and tenders are to be invited

WIGAN.—The T.C. has decided upon another 50 houses to be erected near Gidlow Farm, off Gidlow-lane, and adjoining the present Beech Hill houses.—The Corporation propose to reflоor the Market Hall with 4½ in. deal blocks on a concrete foundation, at an estimated cost of £2,418.

WIMBLEDON.—Application is to be made for sanction to borrow £25,500 for erecting 60 houses on the Durnsford-road site.—The Borough Engineer is to proceed with excavation work, &c., in connection with the construction of the Ashcombe-road bridge, at a cost of £1,700.

WINDERMERE. — The U.D.C. has approved an amended layout of the Oldfield estate, for the erection of 30 parlour and 30 non-parlour type houses.—Plans for a new police station between Bowness and Windermere for the Cumberland and Westmorland Standing Joint Committee have been approved.—Sanction has been received from the M.H. to borrow £500 for the extension of public conveniences at Bowness Bay.

WORSLEY.—The U.D.C. are proposing to erect 50 houses. The plans are being prepared by J. Howard.

Metal Trades' Benevolent Society.

The seventy-eighth anniversary festival of the Royal Metal Trades' Pension and Benevolent Society, postponed from June 1, has been fixed for Tuesday, November 2, at the Guildhall, London. The Prince of Wales has consented to be present. Chairman: The Right Hon. Sir William Robert Pryke, Lord Mayor of London.

NEW COMPANIES

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 & 117, Chancery-lane, W.C.2, from the documents available at the Companies' Registry.

HENRY HAYES (MANCHESTER), LTD. (213,762). Registered May 13. Contractor for public and other works. Nominal capital, £10,000.

CASEBOURNE & Co. (1926), LTD. (213,790). Registered May 15. Pioneer Cement Works, Haverton-hill, Durham. Portland cement manufacturers and merchants. Nominal capital, £400,000.

J. C. PAYNE, LTD. (213,926). Registered May 25. 16, Coleshill-road, Ward End, Birmingham. Builders, builders' merchants, &c. Nominal capital, £2,500.

BEAUMONT & WILSON, LTD. (213,885). Registered May 21. 16, Back Franklin-road, Harrogate. Builders, contractors, decorators, &c. Nominal capital, £700.

LAWN & BURTON, LTD. (213,929). Registered May 25. 7A, Cattle Market, Norwich. House decorators, painters, builders, &c. Nominal capital, £500

HENDRE QUARRY, LTD. (213,896). Registered May 21. Quarry masters, road and pavement contractors, &c. Nominal capital, £1,000.

JARVIS & WOMACK, LTD. (213,898). Registered May 21. Slating and tiling contractors. Nominal capital, £3,000.

JONES & HOUGH, LTD. (213,900). Registered May 21. Builders, joiners, &c. Nominal capital, £10,000.

A. J. BESSANT, LTD. (213,824). Registered May 19. Builders and general contractors, &c. Nominal capital, £6,000.

BEECHWOOD HALL ESTATES, LTD. (213,827). Registered May 19. Builders, decorators, &c. Nominal capital, £20,000.

BILLINGHURST & WEBB, LTD. (213,942). Registered May 26. Builders and contractors. Nominal capital, £5,500.

E. E. BRADLEY, LTD. (213,945). Registered May 26. "Rowthorne," Harrington-road, Littleover, near Derby. Builders and contractors. Nominal capital, £1,500.

ALISON, FLEMING & Co., LTD. (214,028). Registered May 29. 50, Charing Cross, W.C.2. Builders and contractors, &c. Nominal capital, £10,000.

HENRY COLMAN & SONS, LTD. (214,063). Registered May 31. 1, Avenue-road, York. Joiner, contractor, &c. Nominal capital, £4,000.

ANDREWS & GASH, LTD. (214,045). Registered May 31. 137, Inverness-terrace, W.2. Builders, decorators, public works and general contractors, &c. Nominal capital, £2,000.

STAFFORDSHIRE SUPPLIES, LTD. (214,111). Registered June 2. New-road, Great Bridge, Staffs. Public works' contractors, builders, &c. Nominal capital, £5,000.

S. J. GREEN & SON, LTD. (214,095). Registered June 2. 138, Cherry Orchard-road, Croydon. Builders and decorators. Nominal capital, £5,000.

JAS. BLAMIRES, LTD. (214,123). Registered June 3. 6, Newbiggin, Malton, Yorks. Joiner, cabinet maker, &c. Nominal capital, £2,000.

DAWSON QUARRIES, LTD. (214,138). Registered June 4. Quarry owners. Nominal capital, £4,000.

J. BRAMHAM & SON, LTD. (214,142). Registered June 4. Builder and contractor. Nominal capital, £2,000.

COTTAGE HOMES, LTD. (214,137.) Registered June 4. College-street, Extension, Long Eaton. Builders, joiners, carpenters, &c. Nominal capital, £2,000.

CLOUT & TYSOE, LTD. (214,161). Registered June 4. London-road (corner of Galpins-road), Thornton Heath. Builder and contractor. Nominal capital, £10,000.

LES MATERIAUX MODERNES DU PINTEY, LTD. (214,380). Registered June 15. 21, Wigmore-street, Cavendish-square, W.1. Quarrying and the manufacture of artificial stone at Libourne, in the Department of Gironde, France. Nominal capital, £200.

PRICES CURRENT OF MATERIALS

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry —Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 5 6
Second Hard Stocks	3 19 6

Per 1,000. Delivered at London Goods Stations.

Flettons, at	£ s. d.		£ s. d.
King's Cross	2 13 3	Best Blue Pressed Staffs	9 5 0
Do. grooved for Plaster	2 15 3	Do. Bullnose	9 15 0
Do. Bullnose	3 8 3	Blue Wire Cuts	7 5 0

Best Stourbridge Fire Brick:—

2½ in.	8 11 0	3 in.	10 3 0

GLAZED BRICKS—

Best White Ivory, and Salt Glazed Stretchers	21 10 0	D'ble Str'tch'rs	30 0 0
		D'ble Headers	27 0 0
		One Side and two ends	31 0 0
Headers	21 0 0	Two Sides and one End	32 0 0
Quoins, Bullnose and 4½in. Flats	28 0 0	S plays and Squints	29 10 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.

Delivered London.

	s. d.		s. d.
2 in. per yd. super	1 11	3 in. per yd. super	2 9
2½ in. „ „	2 4	4 in. „ „	3 6

	s. d.	
Thames Ballast	10 6	per yd.
Pit Sand	13 9	„ „
Thames Sand	14 6	„ „
Best Washed Sand	14 6	„ „
¾ in. Shingle for Ferro-Concrete	12 9	„ „
¾ in. „	14 0	„ „
¾ in. Broken Brick	11 6	„ „
Pan Breeze	7 6	„ „

delivered 2 miles radius Paddington.

Per ton delivered in London area in full van loads.

Best Portland Cement. British Standard Specification. Test £2 18 0 to £3 3 6 51s. alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	0 10 0
Super Cement (Waterproof)	4 8 0
Roman Cement	8 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
„ „ Pink	5 10 0
Plaster, Coarse, Pink	3 0 0
„ „ White	3 12 6
„ Fine	5 12 0
Sirapite, Coarse	3 9 0
„ Finish	3 17 0
Grey Stone Lime	2 11 9
Chalk Lime	2 11 9
Best Ground Blue Lias Lime	2 4 6
Hair per cwt.	2 2 6
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months carr. pd.

Stourbridge Fireclay in s'cks 35s. 0d. per ton at rly. dp.

STONE.

BATH STONE—delivered in railway trucks at	s. d.
Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	2 9½
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	2 11½

PORTLAND STONE—

Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 4
Do. do delivered on road wagons at above stations, per ft. cube	4 5

White basebed, 3d. per ft. cube extra.

NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.

HOPTON-WOOD STONE—

Delivered at any Goods Station, London.	s. d.
Random blocks from 10 ft. and over P. ft. cb.	17 0
Sawn two sides „	27 0
Sawn three or four sides „	32 0

YORK STONE, BLUE—*Robin Hood Quality.*

Delivered at any Goods Station, London.	s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super.) Per ft. super	5 6
6 in. rubbed two sides, ditto „	6 0
3 in. sawn two sides slabs (random sizes) „	2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) „	1 6½
1½ in. to 2 in. ditto, ditto „	1 4

HARD YORK—

Delivered at any Goods Station, London.	
Scappled random blocks Per ft. cube	6 3
6 in. sawn two sides landing to sizes (under 40 ft. super) Per ft. super	5 1½
6 in. rubbed two sides, ditto „	6 1½
4 in. sawn two sides slabs (random sizes) „	2 10
3 in. ditto ditto „	2 1½
2 in. self-faced, random flags Per yd. super	9 0

CAST STONE.

Delivered in London Area in full van loads, per ft. cube:—Plain, 8s. 6d.; Moulded, 9s. 6d. Cills, 10s. 0d.

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£28 0	3 × 6	£21 0
4 × 9	25 0	3 × 11	25 0
4 × 8	24 0	2 × 11	25 0
4 × 7	23 0	3 × 9	24 0
3 × 8	21 0	2½ × 9	23 0
3 × 7	20 0	3 × 4½	22 0
2½ × 7	20 0	3 × 4	22 0

PLANED BOARDS.

1 × 11	£27 0	1 × 9	£26 0

PLAIN EDGE FLOORING.

Inches.	per sq.	Inches.	per sq.
¾	20/-	1¼	31/-
¼	22/-	1½	34/-
1	25/-		

TONGUED AND GROOVED FLOORING.

Inches.	per sq.	Inches.	per sq.
1	25/-	¾	16/6
1¼	31/-	¼	19/-
1½	34/-	1	24/-

MATCHING (BEST).

Inches.	BATTENS.	s. d.
¾ × 2		2 6 per 100 ft.

SAWN LATHS.

Per bundle	0 2 4

1" AND UP THICK.

	£ s. d.	£ s. d.
Dry Austrian Wainscoat, per ft. cube	0 16 0 to	0 18 0
Dry American and /or Japanese Figured Oak, ft. cube	0 15 0 to	—
Dry American and/or Japanese Plain Oak, ft. cube	0 11 0 to	0 13 0
Dry sq. edged Honduras Mahogany, ft. cube	0 16 0 to	0 18 0
Dry Log cut Honduras Mahogany, ft. cube	0 18 0 to	1 1 0
Dry Cuba Mahogany, ft. cube	1 4 0 to	1 10 0
Dry Teak, ft. cube	0 13 0 to	0 15 0
Dry American Whitewood, ft. cube	0 11 0 to	0 14 0
Best Scotch glue, per cwt.	4 10 0 to	—
Liquid Glue, per cwt.	4 7 0 to	5 10 0

SLATES.

First quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000 of 1,200.

	£ s. d.		£ s. d.
24 by 12	37 12 6	18 by 10	21 2 6
22 by 12	34 0 0	18 by 9	18 12 6
22 by 11	31 5 0	16 by 10	17 12 6
20 by 12	29 15 0	16 by 8	13 15 0
20 by 10	25 12 6		

TILES.

Delivered at London rate stations in full truckloads of not less than 4 tons. Per 1,000 f.o.r. London.

	£ s. d.
Best machine-made tiles from Broseley or Staffordshire district	5 12 6
Ditto hand-made ditto	5 17 6
Ornamental ditto	6 2 6
Hip and valley tiles (per dozen) Hand-made	0 9 6
Hip and valley tiles (per dozen) Machine-made	0 9 0

METALS.

JOISTS, GIRDERS, &C., TO LONDON STATION, PER TON—

	£ s. d.
R.S. Joists, cut and fitted	12 10 0
Plain Compound Girders	14 10 0
„ Stanchions	16 10 0
In Roof Work	19 10 0

MILD STEEL ROUNDS.

To London Station, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
½ in.	12 0 0	⅝ in. to ¾ in.	10 15 0
⅜ in.	11 0 0	⅞ in. to 2½ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward if sent from London Stocks.)

	Tubes.	Fittings.	Flanges.
Black Gas	60 %	50 %	60 %
Galvanised Gas	45 %	40 %	50 %
Blue Water	55 %	45 %	55 %
Galvanised Water	38½ %	35 %	45 %
Red Steam	50 %	40 %	50 %
Galvanised Steam	32½ %	30 %	40 %

C.I. HALF-ROUND GUTTERS—London Prices, ex Works.

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/2½	11½d.	3½d.
3½ in.	1/4	1/0½	3½d.
4 in.	1/5	1/2½	3½d.
4½ in.	1/6½	1/4	4½d.
5 in.	1/9½	1/5½	5½d.

O.G. GUTTERS.

3 in.	1/7	1/3½	3½d.
3½ in.	1/7	1/3½	3½d.
4 in.	1/8½	1/4	3½d.
4½ in.	1/10½	1/6½	4½d.
5 in.	2/3	1/9½	5½d.

RAIN-WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, stock angles.	Branches, stock angles.
2 in. plain	1/-	1/2½	1/8½
2½ in. „	1/11½	1/4	2/0½
3 in. „	2/4½	1/8	2/6
3½ in. „	2/10	2/-	2/10½
4 in. „	3/3	2/4½	3/6

L.C.C. COATED SOIL PIPES—London Prices, ex Works.

	Pipe.	Bends, stock angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
2 in. per yd. in 6 fts. plain	2 11	2 3	2 9
2½ in. „	3 5	2 6	3 5
3 in. „	4 1	2 9	4 0½
3½ in. „	4 5½	3 5	4 8½
4 in. „	4 11½	3 9½	5 5½

L.C.C. COATED DRAIN PIPES—London Prices ex Works.

	Pipe.	Bends, stocks angles.	Branches, stock angles.
	s. d.	s. d.	s. d.
3 in. per yd. in 9 ft. lengths	4 3	5 9	7 8
4 in. „ „	6 3	6 11	9 6
5 in. „ „	7 10	12 0	16 3
6 in. „ „	9 6	15 0	20 9

Gasken for jointing, 39/6 per cwt.

IRON—	Per ton in London. £ s. d.		£ s. d.
Common Bars	13 0 0	to	14 10 0
Staffordshire Crown Bars—good merchant quality	14 5 0	..	15 5 0
Staffordshire "Marked Bars"	16 5 0	..	17 5 0
Mild Steel Bars	10 0 0	..	11 0 0
Steel Bars, Ferro-Concrete quality, basis price	10 0 0	..	11 0 0
Hoop iron, basis price	12 0 0	..	13 0 0
„ Galvanised	27 0 0	..	28 0 0

Soft Steel Sheets, Black—

Ordinary sizes to 20 g.	13 5 0	..	14 5 0
„ „ „ 24 g.	14 5 0	..	15 5 0
„ „ „ 26 g.	16 5 0	..	17 5 0

Sheets Flat Best Soft Steel, C.R. & C.A. quality—

Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 10 0	..	16 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	16 10 0	..	17 10 0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	18 10 0	..	20 10 0

No. 1 quality £4 per ton extra.

Flat and Galvanised Corrugated Sheets—

Ordinary sizes, 6 ft. to 9 ft. to 20 g.	18 10 0	..	19 10 0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	19 0 0	..	20 0 0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	22 0 0	..	23 0 0

Sheets Galvanised Flat, Best quality—

Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	22 0 0	..	23 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	24 0 0	..	26 0 0
Best Soft Steel Sheets, 26 g.	25 10 0	..	26 10 0
Cut Nails, 3 in. to 6 in.	19 0 0	..	20 0 0

(Under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

LEAD, &c.

(Delivered in London.)	£ s. d.
LEAD—Sheet, English, 4 lb. and up	43 0 0
Pipe in coils	44 10 0
Soil Pipe	46 10 0
Compo Pipe	47 10 0

NOTE—Country delivery, 30s. per ton extra: lots under 3 cwt., 3s. per cwt. extra, and over 3 cwt. and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills per ton	28	0	0 —
Do., ex country, carriage forward per ton	29	0	0 —

COPPER.

		s. d.
Seamless Copper tubes (basis)	per lb.	1 0½
Strong sheet	„	1 0
Thin	„	1 1
Copper nails	„	2 3
Copper wire	„	2 4

PLUMBERS' BRASS WORK.

Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
29/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	300/-	588/- per doz.

NEW RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
39/6	60/-	116/6 per doz.

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1¼ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	½ in.	¾ in.	2 in.	3 in.
8 lbs. P. traps	35/-	41/-	56/-	101/- per doz.
8 lbs. S. traps	35/-	45/-	66/-	126/- „

TIN—English Ingots, 2/10 per lb. SOLDER—Plumbers' 1/2, Tinmen's 1/5. Blowpipe 1/6 per lb.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil,	in pipes per gallon	0 3 0
„ „ „	in barrels „	0 3 2
„ „ „	in drums „	0 3 5
Boiled „	„ in barrels „	0 3 2
„ „	„ in drums „	0 3 5
Turpentine	in barrels „	0 5 11
„	in drums (10 gall.) „	0 6 1
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		52 5 0

GENUINE WHITE LEAD PAINT—

"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered	70 15 0
Red Lead, Dry (packages extra) per ton	43 0 0
Best Linseed Oil Putty per cwt.	0 15 0
Filocol „	0 15 6
Size. XD Quality „	0 3 6

Continued on next page.

*The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS (*contd.*)

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

	Per Ft.		Per Ft.
15 oz. fourths ..	3½d.	32 oz. fourths	7½d.
15 „ thirds	4½d.	32 „ thirds	9½d.
21 „ fourths ..	4½d.	Obscured Sheet, 15 oz.	3½d.
21 „ thirds	5½d.	„ 21 „	5½d.
26 „ fourths ..	5d.	Fluted 15oz. 6½d., 21oz.	9½d.
26 „ thirds	7½d.	En'lled 15oz. 5½d., 21oz.	7½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
⅛ Rolled plate	4½d.
⅛ Rough rolled	5½d.
¼ Rough rolled	5½d.
Figured Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish White..	6½d.
Ditto, tinted	9d.
Rolled Sheet	6d.
White Rolled Cathedral	5½d.
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

VARNISHES, &c.

		Per Gallon: £	s.	d.
Oak Varnish.....	Outside	0	14	0
Fine ditto.....	ditto	0	16	0
Fine Copal	ditto	0	18	0
Pale Copal	ditto	1	0	0
Pale Copal Carriage	ditto	1	4	0
Best ditto.....	ditto	1	12	0
Floor Varnish	Inside	0	18	0
Fine Pale Paper.....	ditto	0	18	0
Fine Copal Cabinet	ditto	1	2	6
Fine Copal Flatting	ditto	1	0	6
Hard Drying Oak	ditto	0	18	0
Fine Hard Drying Oak.....	ditto	0	19	0
Fine Copal Varnish	ditto	1	0	0
Pale ditto	ditto	1	2	0
Best ditto	ditto	1	12	0
Best Japan Gold Size		0	12	6
Best Black Japan		0	10	6
Oak and Mahogany Stain (water).....		0	12	0
Brunswick Black.....		0	7	6
Berlin Black		0	14	6
Knotting (patent)		1	5	0
French and Brush Polish		0	17	0
Liquid Dryers in Terebine		0	9	0
Cuirass Black Enamel		0	7	0

Road Widening in Borrowdale.

The wild and beautiful scenery in Borrowdale, which was threatened by the scheme of the Cockermouth Rural District Council for widening its narrow winding road, is not to be disturbed. An agreement has just been arrived at between the Ministry of Transport, the National Trust, and the Cumberland County Council which will prevent the spoiling of that part which was in danger of suffering most.

NEW BUILDINGS IN SCOTLAND

Campbeltown.—HOUSES.—The Scottish Board of Health has finally approved the plans and specifications and offers for the second instalment of the housing scheme promoted by the Town Council.

Aberdeen.—GYMNASIUM.—Plans have been passed by the Town Council for the erection of a gymnasium at the Grammar School, for the Education Authority.

Glasgow. — ANNEXE. — As a contribution towards the fund for the establishment of the proposed annexe to the Glasgow Royal Infirmary on a site which has already been acquired at Canniesburn, an anonymous gift of £2,500 was intimated at a meeting of the managers of the Infirmary. This gift raises the finances of the fund to the sum of £22,500.

Edinburgh.—HOUSING.—Among the petitions granted warrants by the Dean of Guild Court were four to the Corporation authorising the building of a total of 396 houses at various sites in the city.

Glasgow.—VARIOUS.—The Dean of Guild Court has passed plans for Mr. W. Cook to erect terraced houses at Earlspark-avenue; Archbishop Mackintosh and others, to erect a temporary church at Kelmany-street, Carntyne, and a presbytery at Paisley-road, Cardonald; Standard Kipering Co., Ltd., to erect a fish-curing factory at Orr-street; Kelvinside Academy War Memorial Trust, to make alterations at Kelvinside Academy; the managers of Burnbank U.F. Church, additions to church buildings.

Perth.—HOUSES.—Plans have been passed for the erection of fifty-two Atholl steel houses at Gray-street and Needless-road.—Plans were also passed for an addition to the administrative block of Friarton Isolation Hospital, to be used as nurses' bedroom accommodation.

Paisley.—BANK.—Plans for a new bank in Moss-street have been passed. The architects are Messrs. C. Davidson & Son.

Obituary.

The death has occurred at the Royal Infirmary, Glasgow, on July 10, of Mr. John Stuart Wood, builder, Stuartville, Maryhill Park.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers—Masons', Bricklayers', Plasterers'.
Aberdeen	1/8	1/8½	1/8	1/8	1/8	1/8	1/7	10½d. to 1/1
Airdrie	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/3
Alexandria.....	1/8	1/8	1/8	1/8	1/8	1/8	—	1/2½ to 1/3½
Arbroath	1/7	1/7	1/7	1/7½	1/7	1/7	1/5½	1/1½
Ayr	1/8	1/8	1/8	1/8	1/8	1/8	1/6½	1/3
Bathgate	1/8	1/8	1/8	1/8½	1/8	1/8	1/6½	1/2 to 1/3
Blairgowrie	1/7	1/7	1/7	1/7½	1/5	1/7	1/4	10d. to 1/-
Bo'ness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Coatbridge.....	1/8	1/8	1/8	1/8	1/8	—	1/6½	1/3 to 1/3½
Dumbarton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Dumfries	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Dundee	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3
Dunfermline	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Edinburgh	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Falkirk	1/7½	1/7½	1/7	1/8	1/7	1/7	1/6½	1/2½
Fort William.....	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Galashiels	1/7	1/7	1/7	1/7	1/7	1/7	1/7	1/2½
Glasgow	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Greenock	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/0½ to 1/3½
Hamilton	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Hawick	1/7	1/7	1/7	1/7-1/7½	1/7	1/7	1/7	1/2½
Helensburgh	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½
Inverness	1/5	—	1/5	1/4	1/5	1/5	1/4	1/- to 1/2
Kilmarnock	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkcaldy	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Kirkwall.....	1/5	1/5	1/4	1/5	1/5	1/4	1/4	1/-
Lanark	1/8	1/8	1/8	1/9	1/8	1/8	1/6	1/0 to 1/3
Leith	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3½
Motherwell.....	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3½
Perth	1/8	1/8	1/8	1/9	1/8	1/8	1/6½	1/3
Stirling	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/3½
Stirlingshire (Eastern District)	1/8-1/10	1/8 1/10	1/8	1/9	1/7	1/8	1/6½	1/3½
Wishaw	1/8	1/8	1/8	1/9	1/8	1/8	1/7	1/3½

*The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 105.

YEAR BOOKS AND DIRECTORIES

The Municipal Year Book for 1926. Published by *The Municipal Journal*, Ltd., Sardinia House, Sardinia-street, London, W.C.2. Price, 15s. net. Directed by SIR ROBERT DONALD, G.B.E., and edited by C. F. BULPITT.

This year book is so well known and has so completely proved its value as a book of reference on every aspect of matters municipal, that any commendation of its virtues would at this time of day be superfluous. Let it suffice to say that the 1926 edition, comprising about 1,000 pages of matter, is as complete and informative as any of its predecessors. All its usual features are present, brought completely up to date, and all changes in Local Government—legislative, administrative, personnel, and so forth—are duly recorded in their proper place. Mr. Neville Chamberlain, M.P., Minister of Health, contributes an interesting article on "Reforms in Local Government," in which he indicates the scope and effect of the recent reform of the rating and valuation system of the country, and refers to the reform of the poor law administration which he hopes will be successfully dealt with this year.

Specification: *For Architects, Surveyors, Civil Engineers, and for all interested in Building.* Edited by FREDERICK CHATTERTON, F.R.I.B.A., 9, Queen Anne's Gate, Westminster. Price, 10s. 6d. net.

The twenty-eighth yearly issue of this manual sustains its usual standard of technical value and interest. In addition to the customary features, embracing technical data and specification clauses relating to building and municipal engineering, the volume has a number of new features, including a colour plate of selected joinery timbers and a series of special articles on such subjects of present-day interest as "Music Pavilions," "Cast Stone," "The Law of Ancient Lights and its Suggested Amendment," "Empire Timbers," "Rapid Hardening Cements," &c.

The Advertiser's A.B.C.

The 1926 edition of this work fully maintains its reputation as the "standard advertisement directory." It is a veritable compendium, comprising nine sections, each devoted to some special branch of the great modern business of advertising. Its complete, classified lists of newspapers, magazines, and periodicals, not only in Great Britain and Ireland and the British Dominions, but throughout the world, is supplemented by a great deal of interesting matter, including articles on advertising, salesmanship, &c., and a series of successful advertisements that have appeared in the Press and elsewhere. The directory is published by Messrs. T. B. Browne, Ltd., of 163, Victoria-street, London, E.C.4.

Mechanical Year Book, 1926. (Manchester: Messrs. Emmott & Co., Ltd.) Price 1s. 6d.

THE year book contains nearly 400 pages of most complete and exhaustive information. The new features introduced in this thirty-ninth edition include a section on the Uniflow engine, in which are concise notes and data relating to this comparatively new type. Other new sections include that on superheating and one entitled "Notes on Grinding"; the latter includes many tables dealing with grinding allowances and information relating to various abrasives. Another new section is devoted to forced and shrinkage fits, and still another to chains and ropes for lifting. Some of the permanent sections have been rewritten, added to, and revised.

Exhibition Hall for Salford.

Salford City Council has accepted the recommendation of a special committee to advertise for offers for the erection of a large trade exhibition hall on the cattle market site, Cross-lane. The buildings are expected to cost £250,000.

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	11	0
Add if in clay	" "	1	0
Add for every additional depth of 6 ft.	" "	0	6
Planking and strutting to trenches	per foot super	0	5
Do. to sides of excavation, including shoring	" "	1	0

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	32	0
Add if in underpinning in short lengths	" "	7	0
Add if in floors 6 in. thick	" "	3	3
Add if in beams	" "	3	9
Add if aggregate 1 : 2 : 4	" "	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	2	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	30	0	0
Add if in stocks	"	7	10	0
Add if in Staffordshire blues	"	22	0	0
Add if in Portland cement and sand	"	1	10	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

		s.	d.
Neat flat struck or weathered joint	" "	0	0	3

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork :—			
Fair external in half brick rings	" "	0	0	10
Axed in stocks	" "	0	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	0
Setting ordinary register grates and stoves	each	1	0	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	4	15	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	4	3
Three-quarter-inch vertical damp course	" "	8	6
½ inch on flats in two thicknesses	" "	6	3
Angel fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	2

MASON.

		s.	d.
York stone templates fixed	per foot cube	13	0
York stone sills fixed	" "	22	0
Bath stone and all labour fixed	" "	10	6
Portland stone fixed	" "	20	0

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	9
Do 20 in. × 10 in. Do. Do.	"	80	9
Do. 24 in. × 12 in. Do. Do.	"	90	0

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	5	0
Do. joists	" "	5	6
Do. roofs, floors, and partitions	" "	6	0
Do. trusses	" "	8	6

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	35/6	40/-	45/-	72/-

		s.	d.
Flat centering for concrete floor, including struts or hangers	"	50	0
Do. to beams	per ft. sup.	1	0
Centres for arches	"	1	6
Gutter boards and bearers	"	1	0

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		44/6	53/-	60/6
Do. tongued and grooved	"		49/-	57/6	65/-
Do. matchings	"	45/-	51/-		
Moulded skirting, including backings and grounds	per ft. sup.	1/6	1/9	2/0	2/6

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super.	1	10
Two Do. Do. Do.	" "	2	1
Add for fitting and fixing	" "	0	3
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights; average size	" "	3	9

DOORS.

		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/1	2/4	2/6
Four-panel Do.	"	2/5	2/8	2/11
Two-panel moulded both sides	"	2/8	2/11	3/2
Four-panel Do. Do.	"	2/11	3/2	3/5

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	0

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers	"	1/4	1/6	1/9
Add if cross-tongued	"	2d.	2d.	2d.

STAIRCASES.

		1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets		2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed		1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run	0	9
Mahogany handrail: average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	16	3
Plain compound girders	"	19	0
Do. stanchions	"	21	9
In roof work	"	27	6

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/6	1/9	2/-	2/6
Ogee Do. Do.	"	1/9	2/-	2/6	3/3
Rain-water pipes with ears	"	1/9	2/7	—	—
Extra for shoes and bends	each	4/4	5/11	—	—
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	57	0
Do. Do. in flats	"	56	0
Extra labour and solder in coated cesspools	each	6	9
Welf joint	per ft. run	0	6
Soldered seam	" "	1	6
Copper nailing	" "	0	6

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	1/2	1/9	2/-	3/4	4/-	—
Do. service	"	1/8	2/2	2/7	3/10	—	—
Do. soil	"	—	—	—	—	—	6/9
Bends in lead pipe	each	—	—	—	—	3/3	8/2
Soldered stop ends	"	1/2	1/8	2/1	2/10	3/6	—
Red lead joints	"	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	"	2/10	3/6	4/-	4/11	6/6	9/9
Lead traps and cleaning screws	"	—	—	—	14/7	19/6	—
Bib cocks and joints	"	6/4	9/7	15/4	41/-	—	—
Stop cocks and joints	"	15/4	17/2	25/8	64/-	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	4
Do. Do. Sirapite	" "	2	7
Do. Do. Keen's	" "	3	7
Add sawn lathing	" "	1	7
Add metal lathing	" "	2	6
(Not including hangers or runners, &c., for suspended ceilings.)			
Portland cement screed	per yard sup.	2	2
Do. plain face	" "	3	3
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	5	9

GLAZIER.

		s.	d.
21 oz. sheet plain	per foot sup.	0	8½
26 oz. Do.	" "	1	0
Obscured sheet	" "	1	1
⅛ in. rolled plate	" "	0	9
¼ in. rough rolled or cast plate	" "	0	10½
¼ in. wired cast plate	" "	1	4

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	" "	0	7
Plain painting, 1 coat	" "	0	9
Do. 2 coats	" "	1	2
Do. 3 coats	" "	1	9
Do. 4 coats	" "	2	4
Graining	" "	2	3
Varnishing twice	" "	1	9
Sizing	" "	0	3
Flatting	" "	0	7
Enamel	" "	1	1
Wax polishing	per foot sup.	0	6
French polishing	" "	1	2
Preparing for and hanging paper	per piece, 2/- to 4/-		

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10 % on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TRADE NEWS

Bitumen Roofing.

A new illustrated booklet on "Veribest" bitumen self-finished roofing has just been issued by Messrs. George M. Callender & Co., Ltd., of 25, Victoria-street, Westminster. It contains a useful description of the process of manufacture, the qualities and advantages of the material, and so forth, and a particularly valuable feature is a careful set of directions for fixing the material on sloping and flat roofs, special attention being given to details of fixing, such as nailing, cementing, ridge and hips, valleys, eaves and verges, step flashings, valley gutters, &c. These instructions are accompanied by a technical drawing and by photographic views of jobs in progress or completed. "Veribest" material is made from a base of selected wool felt, specially prepared. This felt is thoroughly saturated with pure natural bitumen, properly refined and tempered under Callender's original process, and to make this saturation complete the prepared bitumen is by a special metnod of manufacture forced through the felt so that every fibre is effectively impregnated. The saturated felt is then conducted through heated steel compression rolls to render it homegeneous, and finally receives the outer coating which gives it its pleasing appearance and renders it spark and fire-brand proof. The material is light and tough, possessing sufficient elasticity to permit of contraction or expansion without the risk of joints opening, while its further qualities of imperviousness and permanency make it an extremely useful roof-covering. "Veribest" is used extensively by the Admiralty, War Office, R.A.F., H.M. Office of Works, local authorities, and private bodies.

Agricultural Apparatus.

Messrs. R. A. Lister & Co., Ltd., are exhibiting their agricultural and industrial engines, cream separators, and electric lighting plants, &c., at the following agricultural shows: Devon County Show, Royal Agricultural, Royal Counties, Bath and West Show, Three Counties, Lincolnshire Show, Yorkshire Show, Royal Lancashire, Royal Welsh, Royal Highland, Somerset Show, Altrincham Show, Dairy Show, Smithfield Show.

Folding Wall Table and Seat.

Messrs. Manuel Lloyd & Co., of 56, Mountgrove-road, N.5, have recently placed on the market an attractive speciality in the "Automatic" folding wall table and seat. As a table it is a welcome addition to a kitchen, bedroom, dining-room, &c. As a seat, white enamelled with cork top, it is a real convenience in modern bathrooms. The seat, which is stained various colours and fitted with self-acting "tip-up" action, is especially suitable for shops, cinemas, railways, motor-cars, and boats.

Sound Absorbing and Heat Insulating Quilt.

A useful and interesting illustrated booklet on Cabot's Quilt has been issued by Messrs. Huntley & Sparks, of 46, King's-road, Sloane-square, S.W.3. Its object is to show the very wide range of buildings in which this product finds a useful place, and illustrations are given of its application to domestic work, hotels, hospitals, electricity power stations, schools, music rooms, music studios, gramophone audition rooms, &c. Some useful diagrams are given of various forms of construction for sound deadening and heat and cold insulation, together with some instructive notes on acoustics.

A New Mortising Machine.

Messrs. Wilson Bros. (Leeds), Ltd., of Victoria-road, Leeds, have just placed on the market a new design of mortising machine (C.M.A.) for the benefit of the smaller firms who wish to obtain the advantages and cost-reducing facilities of chain and hollow-chisel mortising provided by their "New Rex" machine, but at a lower first cost. The endless chain cutter which provides a most rapid method of mortising in an up-to-date machine produces a perfectly clean mortise at one stroke without boring or core driving. The C.M.A. machine is of ample capacity to suit all classes of work. It will take in wood 12 in. deep by 9 in. wide, and mortise from 3-16 in. to 1¼ in. wide and up to 6 in. deep. The shortest length of mortise cut by a standard chain is 1½ in. long, and any length can be made from this; the shortest mortise from the "sash" chain cutters is ⅞ in. long. The hollow chisel mortising arrangement will take chisels up to 1 in. square, and ordinary boring augurs up to 1½ in. diameter With regard to construction, the frame is a heavy casting in one piece, box section of careful design and ample weight to absorb all vibration. All parts are accurately machined and fitted, and each machine undergoes a careful inspection and running test before being sent out. Special features of the machine are the self-compensating drive, automatic starting and stopping, an automatic clutch, and a pressure block which prevents the wood from splintering. Ball-bearings are fitted throughout.

A Small Domestic Boiler.

In order to meet the demand for a small domestic boiler provided with an exceptionally large open fire, Messrs. Wood, Russell & Co., Ltd., 34, Oxford-street, W.1, now supply their

"Sentry" Minor No. 0 Boiler with an alternative front, in which, in place of the fall-down door with mica window, a large double-hinged door is fitted. This gives an even larger open fire, while the inner grate is made in two pieces, the upper portion of which falls down to form a trivet. An additional feature is an alteration to the ash door; this now has attached to it an ashpan with an open end, whereby the action of pushing in the ashdoor scoops up the ashes from the base. The boiler with the new design of front is called, for the purpose of distinguishing it from the "Sentry" Minor No. 0, the New "Sentry" Minor No. 0. Both patterns of fronts are supplied as required, the boiler body itself is unaltered, and it remains suitable for installing in a house with one bathroom and the usual hot taps, to work in conjunction with a hot water storage of from 25 to 40 gallons capacity, and with this amount of storage the boiler is capable of dealing with a small radiator, in addition, of course, to the usual hot taps.

The Bombay Pipe Line.

The Municipal Commissioner has submitted to the Standing Committee of the Bombay Municipal Corporation the sixteenth annual report of Mr. Trives Smith, special engineer, Tansa completion works, for the year 1925–26 In doing so, he remarks: "The report shows most satisfactory progress in every direction, and the Corporation has certainly reason to be proud of the fact that its executive has carried to a 'rapid and successful completion one of the biggest engineering works accomplished in India.'" A tribute is paid to the splendid work done by Messrs. Braithwaite & Co. and the Tata Construction Co., the two chief contractors for the work.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

*** Denotes *accepted*. † Denotes *provisionally accepted*.**
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.

ACCRINGTON.—New Primitive Methodist Church, Whalley-road. Mr. F. Harrison, L.R.I.B.A., architect. Quantities by the architect:—

*G. Cunliffe & Son, Ltd., Accrington. . £5,600

ACCRINGTON.—Machine room at Broad Oak Works for the Calico Engineer, Printers' Association, Ltd.:—

*G. Cunliffe & Son, Ltd., Accrington.

BARKING TOWN.—In our last issue, under this heading, for the erection of a car shed at Beckton, for the U.D.C., Messrs. The C. & S. Construction Co.'s price was given as £167. This is incorrect; the price should have been £139 17s.

BEDFORD.—Work at Corn Exchange, for the T.C.:—

Reflooring—
*Wells & Co. £495
Decoration—
*H. S. Manning & Son 342

BENTLEY.—For (*a*) 32 houses in Jossey-lane, and (*b*) 16 bungalows, for the U.D.C.:—

(*a*)*H. & L. Marshall, Doncaster: £857 pair.
(*b*)*A. Bull, Bentley: £807 pair.

BIGGLESWADE.—Ninety houses on the Townfield housing site, for the U.D.C. Mr. T. R. Howitt, architect:—

C. Miskin & Son, Ltd., St. Albans	£44,191
Kempster & Williams, Watford	41,191
Wrights (Langford), Ltd., Langford ..	38,767
J. Ray, Letchworth.....	37,641
C. D. Woodward, Biggleswade	36,764
A. Carter, Luton	35,980
C. A. White, Bedford	34,488
*J. Cracknell, Ltd., Peterborough	34,372
Pettengell & Clark, Hitchin (40 houses only)	15,912

BIRKENHEAD.—Certain alterations to the workshop at the Laird-street depot, for the C.B.:—

*E. Thomas & Sons, Oxton £793

BIRKENHEAD.—Construction of a pit for the new petrol tanks at the Laird-street depot, for the C.B.:—

*Selwood Lloyd & Co., Ltd., Birkenhead £500

BIRKENHEAD.—Conversion of the Central Library to the open access system, for the C.B.:—

*Selwood Lloyd & Co., Ltd., Birkenhead £541

BIRKENHEAD.—Electricity sub-station at Bromborough, for the T.C. (revised tender):—

*Selwood, Lloyd & Co., Ltd. £920

BIRMINGHAM.—For re-building of "Billesley Arms," licensed premises, corner of Brook-lane and Wheeler's-lane, King's Heath, for Messrs. Holt Brewery, Ltd. Messrs. Wood & Kendrick, architects and surveyors, 57, Colmore-row:—

*Geo. Webb & Sons, Ltd., Birmingham.

BOGNOR.—Schools in Glamis-street, for the Roman Catholic trustees. Mr. W. C. Mangan, architect, 18, Guildhall-street, Preston:—

*Marchetti, Ltd., Portsmouth £3,785

BOSTON (LINCS.).—Redecorating at the Assembly Rooms, for the T.C. Mr. G. E. Clarke, Borough Engineer:—

Griffin & Hall, Boston	£175 0
W. Greenfield, Boston	162 0
A. E. Coe, Boston	152 0
J. Norton, Boston	131 10
*G. R. Langstaff Boston.....	101 10

BOURNEMOUTH.—Supplying and fixing a new heating apparatus at the Malmesbury Park Council Mixed School, for the E.C.:—

Bacon & Curtis, Ltd., Bournemouth..
Garton & King, Exeter .....
‡G. N. Haden & Sons, Ltd., Trowbridge £450
Pontifex, Ltd., London .....

BRADFORD.—Plumber and glaziers' work in the erection of 16 combined shops and houses on the Bierley house estate, for the T.C.:—

*F. Studwell & Son, Bradford..... £2,346
(In lieu of W. Murgatroyd.)

BRADFORD.—For (*a*) ten houses, Duckworth-lane; (*b*) twenty-two houses, Kingston-road; (*c*) ten houses, Kingston-road; and (*d*) sixteen houses at Briarwood-drive:—

(*a*)*J. P. Leach.
(*b*)*A. E. Akeroyd.
(*c*)*J. Bickerdyke.
(*d*)*Groves & Greenmoor.

BRISTOL.—Elementary school for 400 at Barrow Hill Shirehampton, for the E.C.:—

Builders' work—
*H. C. Wakefield & Son £8,284
Plumbers' work—
*A. & J. Tulcher 563
Heating apparatus—
*J. Crispin & Sons 610

BRISTOL.—Handicraft centre at Hotwells, for the E.C.:—

*C. A. Hayes & Son..... £1,268

BRISTOL.—Conveniences at Colston-avenue, for the T.C.:—

‡F. Wilkins £2,636

BROMLEY.—Redecoration and repairs to cottages at the Council's housing estate, at Bromley Common, for the T.C. Borough Engineer :—

E. R. Seadon, Bromley.
Marshall & How, London.
F. W. Crouch, Beckenham.
J. H. Bloomfield & Son, Bickley.
V. A. Batchelor, Beckenham.
*Woodhams & Tyler, Bromley.

BURTON-ON-TRENT.—Walls in connection with the Ashley-road widening, for the T.C. (revised) :—

*G. Hodges & Son £4,499

CANTERBURY.—Thirty-two parlour type houses on the "Forty Acres" site, for the Corporation. Mr. P. H. Warwick, City Surveyor :—

G. Browning, Canterbury	£20,256
R. J. Barwick, Dover	19,185
Cox Bros., Maidstone	17,600
*J. B. Barton & Co., Whitstable..	16,841

CARLISLE.—Work at new generating station, for the T.C. :—

Concrete work in main building—
*Ormerod & Son, Carlisle £2,500
Fencing site—
*Gatrix & Sons, Walkden 641
Red adamantine floor tiling —
*J. C. Edwards, Ruabon 439
Floor and wall tiling—
*Gibbons, Hinton & Co., Ltd., Brierley Hill 352
Steel doors—
*General Construction & Engineering Co., Ltd., London.... 130
Superstructure of screening and pump chamber—
*Durham & Veevors, East Boldon.. 1,300

CHATTERIS.—Fourteen parlour type houses in Curf-Doddington-road, for the U.D.C. Mr. S. Hipwell, architect, 19, New-road :—

	Per pair.
A. Pettitt & Sons, Ramsey ..	£1,085 0 0
W. Canham, Somersham	928 10 0
Swearer & Sons, Ramsey ..	925 0 0
*J. W. Clark, Chatteris	875 10 0
Bristow & Melton, Chatteris ..	845 19 10

CHELMSFORD.—Installation of new heating apparatus, with necessary builders' work, at Friars School, Friars-place, for the E.C. Mr. E. J. Miles, Borough Engineer :—

Christy & Norris, Chelmsford....	£562 15 6
F. Warner & Son, Ipswich	519 0 0
*The Walkin Heating Co., Westcliff-on-Sea	443 0 0

CHESHUNT.—Fifty-four houses, and also alternatively for 32, on the Goff's Oak site, for the U.D.C. Mr. J. E. Sharpe, engineer and surveyor :—

	32 Houses.	54 Houses.
A. Monk, Tottenham	£17,012 0 0 ..	£28,644
Kempster & Williams, Watford	16,075 1 7 ..	27,860
W. B. Hart, Cheshunt	13,438 0 0 ..	23,118
‡J. Oram & Son, Waltham Abbey	13,366 0 0 ..	22,877

CHERTSEY.—Thirty houses on the Pycroft site, Chertsey, and 24 on the Green-lane site, Addlestone, for the U.D.C. :—

*Lacey & Sons £28,224

COLCHESTER. — New sub-stations at North Station-road and Lexden, for the T.C. :—

*E. A. Cook & Sons..... £835

COLWYN BAY.—Branch bank, Old Colwyn, for the directors of the District Bank, Ltd. Messrs. Francis Jones, F.R.I.B.A., and H. A. Dalrymple, A.R.I.B.A., 178, Oxford-road, Manchester :—

*R. H. Williams, Colwyn Bay.

CROSSGATES.—Hotel, for Melbourne Brewery, at Foundry-lane and York-road junction :—

*W. J. & R. Turnbull.

DORCHESTER.—Four houses at Puddlehinton and two at Winterbourne, for the R.D.C. :—

*H. E. Tite.
(Subject to M.H. approval.)

DUKINFIELD.—Ten houses on the Birch-lane site, for the T.C. Mr. J. Gibson, architect, Ashton-under-Lyne :—

*Thos. Warrington, Hyde.

DURHAM.—Four houses at St. Leonards, Durham City, for the T.C. Mr. J. W. Green, City Engineer :—

Thos. Burns, Durham	£2,985 0
W. C. Bulmer & Sons, Sowerby, Thirsk	2,850 0
A. Anderson, Newcastle-on-Tyne	2,740 0
R. Snowball & Sons, Durham....	2,143 0
A. Elcoat, Bearpark, Durham..	1,890 0
W. R. Charles & Co., Birtley....	1,852 7
*J. W. White, Sunderland	1,800 4

ENFIELD.—Six cottages and a motor ambulance garage at the Isolation Hospital, World's End, Winchmore-hill, N., for the Board to the Hospital. Mr. H. R. Crabb, Public Offices :—

*Oram & Son, Waltham Abbey.

FORMBY.—New depot, for the U.D.C. :—

Chas. Jackson, Wigan	£3,198
Formby Bros., Formby	3,069
Barton Bros., Formby	2,500

GLASGOW.—Painter work required in connection with the new baths and washhouses at (1) Cowcaddens; and (2) Pollokshaws, for the T.C. :—

(1)‡J. & R. Anderson	£314 8 5
(2)‡D. R. Gray & Son.....	683 13 4

GLASGOW.—New buildings at the Stockwell-street improvement (third section), for the T.C. :—

Excavator, mason, &c., work —	
‡Jackson, Brown & Co.....	£16,538 6 0
Carpenter, &c., work—	
‡J. Baxter & Sons.....	6,927 18 11
Steel work—	
‡Fleming Bros.....	2,384 13 1
Cast-iron work—	
‡Moses M'Culloch & Co.....	1,792 7 5
Plumber work—	
‡J. Paterson & Co. (Plumbers), Ltd.	803 3 0
Plaster work—	
‡W. Reid & Sons.....	1,176 13 3
Asphalt work—	
‡Scottish Speedwell Co., Ltd...	261 5 3
Reinforced concrete floors and roofs—	
‡Melville, Dundas & Whitson..	8,598 4 11
Steel windows—	
‡Maclean & Co.....	916 18 4
Tile work—	
‡J. Youden & Son, Ltd.....	794 8 9
Glazier work—	
‡Baillie & Telfer	1,298 0 0
Iron railings and metal covered doors—	
‡Folding Gate Co., Ltd.....	516 3 4
Painter work—	
‡C. Marshall	548 10 2

GLASGOW.—Lodge at Loch Lomond Park, for the T.C. :—

‡*Mason work*—J. A. Paton & Sons, Alexandria	£377 0 0
‡*Joiner and glazier work*—A. & W. Thomson, Alexandria	220 0 2
‡*Slater and roughcast work*—P. M'Kinlay	111 8 0
‡*Plumber work*—J. M. Feat	172 12 0

GLASGOW.—Plaster work at 66 houses at Summertown-road, for the T.C. :—

‡W. Walker & Sons..... £2,002

GLASGOW.—Iron railings for Yorkhill rehousing scheme, for the T.C. :—

‡A. & J. Main & Co., Ltd..... £239

GLASGOW.—Iron railings at Elder-park clinic, for the T.C. :—

*J. Robertson & Co., Glasgow £239 10

GLASGOW.—180 houses at M'Neil-street, for the T.C. :—

Mason work—	
‡W. Taylor & Son (Glasgow), Ltd.	£26,489 10 0
Joiner work—	
‡M. Dunbar	15,817 0 0
Slater work—	
‡W. Walker & Sons	2,866 10 1
Plumber work—	
‡J. W. Houston & Hogg, Ltd.	11,091 0 0
Plaster work—	
‡A. M'Kellar	4,944 5 8½
Glazier work—	
‡J. M. Pattison	433 18 3

GLOUCESTER.—Forty-two brick semi-detached houses on land at Tredworth, for the T.C. City Surveyor :—

‡W. J. B. Halls, Ltd., Gloucester.... £18,750

GOOLE.—Fifty-eight "A" type houses on the Westfield-avenue and Jacksonville sites, for the U.D.C. Mr. J. H. Castle, engineer and surveyor :—

*Platt & Featherstone, Goole £25,315

GUISBOROUGH.—Construction and equipment of a new infectious diseases hospital, for the Guisborough Joint Hospital Board :—

*J. G. Porteous, Ltd., Middlesbrough .. £10,350

GUISELEY.—Rebuilding section No. 2 Golf Club house, for the Bradford Golf Club, at Hawkesworth :—

*A. Robinson.

HALIFAX.—Construction of the Wards End Junction, for the T.C. :—

‡E. Allen & Co., Ltd., Sheffield £1,574

HATHERSAGE.—Widening Leadmill bridge, for the Derbyshire C.C. :—

*G. F. Tomlinson, Derby £13,997

HETTON.—Fifty bungalows on the Hetton housing site, for the U.D.C. Mr. A. H. Fennell, architect, Bridge End chambers, Chester-le-Street :—

*G. H. Gibbons & Sons, Sunderland.
*J. J. Storey, Hetton le-Hole.
*G. W. Sparrow, Hetton-le-Hole.
*G. Brantford & Co., Sunderland.
F. W. Mole, Chester-le-Street.
J. Clark & Sons, New Seaham.
H. M. Nowell, Newcastle-on-Tyne.
Dyson & Lindsley, Chester-le-Street.
Edward Rutter
Henry Bell & Sons, Ryhope.
Henry Wilson, Fatfield.

HEYWOOD.—Eight parlour cottages, for the Westbury and Whorwellsdown R.D.C. Mr. W. W. Snailum, architect, Trowbridge :—

	Per pair.
Syms & Son, Corsley.....	£1,097
R. Isley, Trowbridge	916
Holdoway & Son, Westbury	905
J. T. Parsons, Westbury	900
*E. Linzoy & Son, Trowbridge.....	890

HOUGHTON-LE-SPRINGS.—For 14 type A3 houses, for the U.D.C. :—

*A. H. Balmer (six)	£2,616
*I. Berriman (eight)	3,840

KEYNSHAM.—Twenty-four semi-detached parlour type houses, for the R.D.C. Mr. H. W. Argile, Building Surveyor, 16, High-street :—

Dix & Beese	£14,090
Thomas & Sons	13,972
E. A. W. Poole & Son.....	13,860
A. D. Turner	13,340
Charles Malone	13,320
George Howell.....	13,028
A. J. Miller	12,794
Dix & Son	12,060
E. Walters & Son	11,700
*Salter & Bailey	11,368

(All of Bristol.)

LEAGRAVE.—Building for the Leagrave and Limbury British Legion Club. Mr. G. H. Herring, architect, Luton Hoo Estate Office :—

A. & E. Fensome, Leagrave	£1,110
*F. Titmuss, Limbury	1,058

LIVERPOOL.—Cleaning and painting inside administrative block and nurses' home, Fazakerley Sanatorium, for the T.C. Land Steward and Surveyor :—

*J. H. Taylor, Ltd., Liverpool.... £1,025 14

LIVERPOOL.—Alterations and additions at the Pumpfields electric sub-station, to form a storeroom and workshop, &c., for the T.C. :—

*J. Henshaw & Sons, Liverpool..... £6,183

LIVERPOOL.—Houses, for the T.C. :—

	Parlour type.	Non-parlour type.
‡H. Boot & Sons (London), Ltd.	250 ..	750
‡Walter E. Hughes	125 ..	125
‡J. Jones & Sons	200 ..	—
‡Radie, Towers & Co.....	— ..	500
‡C. J. Doyle	500 ..	—
‡Unit Construction Co., Ltd.	1,000 ..	—
‡Richard Costain & Sons, Ltd.	125 ..	250
‡A. James	125 ..	125

LIVERPOOL.—Vicarage at Childwall, for the Rev. R. M. Hunter. Mr. Edwin J. Dod, A.R.I.B.A., Cunard Buildings, Liverpool :—

*J. Johnson & Son, Wigan.

LIVERPOOL.—School-chapel on a site adjacent to the college, for the Board of Management of the Liverpool College for Girls, Liverpool. Mr. W. H. Brierley, F.R.I.B.A., 13, Lendal, York :—

*W. Birch & Sons, Ltd., York.

LONDON.—Wiring of Carter House, Butler-street for the Stepney B.C. :—

Ellis & Ward, Ltd.	£491 11 6
Duncan, Watson & Co.	491 0 0
Barlow Bros. & Co.	444 10 0
‡L. G. Tate & Co., Ltd.....	411 2 0

(All of London.)

LONDON.—Reconstruction of the engine-room at the King's-road Power Station, for the St. Pancras B.C. :—

Keay, Ltd., Birmingham	£12,424
A. H. Inns, Ltd., London	11,747
Wm. Downs, Ltd., London	8,875
‡Fairweather & Ranger, London....	8,500

LONDON.—Wiring of the St. Pancras Almshouses, for the St. Pancras B.C. :—

Taylor & Goodwin	£296 0 0
Gibrico Electric, Ltd.	240 15 0
McDonald, Syer & Co.	219 10 0
Sims & Sims	202 12 0
Bucknells, Ltd.....	199 12 0
R. Reeves	195 0 0
Goddard & Co.....	184 12 0
Northcote, Heaver & Co.....	176 5 0
H. J. Toms & Co.	158 12 6
‡Herrick, Durell & Co., Ltd.....	153 10 2

(All of London.)

LONDON.—One hundred houses on the Twenty-acre field, for the Greenwich B.C. :—

Wm. Simms	£67,490 2 4
J. W. Ellingham, Ltd.	58,584 0 0
Griffiths, Sons & Cromwell, Ltd.	55,549 0 0
*Thomas & Edge	53,610 0 0
Walter Jones & Sons, Ltd.	53,100 0 0

(All of London.)

LONDON.—New admission villa at Colney Hatch mental hospital to accommodate 40 male patients, for the L.C.C. :—

Chessums, Ltd., Tottenham ..	£18,459 0 0
Wilson Lovatt & Sons, Ltd., Wolverhampton	16,439 15 8
J. & C. Bowyer, Ltd., London	15,334 0 0
Wm. Moss & Sons, Ltd., Loughborough	15,129 5 7
W. Lawrence & Son, Ltd., London	14,762 0 0
E. A. Roome & Co., Ltd., London	14,591 0 0
Patman & Fotheringham, Ltd., London	14,425 0 0
C. P. Roberts & Co., Ltd., London	14,400 0 0
G. Godson & Sons, Ltd., London	14,320 0 0
W. H. Gaze & Sons, Ltd., Kingston-on-Thames	14,250 0 0
Mr. Arthur Monk, Edmonton..	14,134 0 0
Allen Fairhead & Sons, Ltd., Enfield	13,946 0 0
Bovis, Ltd., London	13,943 0 0
‡C. Miskin & Sons, Ltd., St. Albans	13,614 0 0
The Architect's comparable estimate	13,924 0 0

LONDON.—Painting works at parks and open spaces in the south-west district, for the L.C.C.:—

W. J. Dixon & Son, Blue Anchor-lane	£1,452 0 0
T. Brown & Son, Herne-hill	1,316 0 0
N. Harris & Sons, Brockley	1,151 13 0
*Roy Gibson, Barnes	1,036 13 9

LONDON.—Improvements to the heating apparatus at (*a*) Bath-street, Finsbury, and (*b*) Telferscot-road school, Clapham, for the L.C.C.:—

(*A*)

‡Clark, Hunt & Co., Ltd.	£1,625 0
The Brightside Foundry & Engineering Co., Ltd.	1,887 0
G. Davies	2,066 0
Colley, Meikle & Co., Ltd.	2,066 0
J. & F. May	2,300 0

(*B*)

‡Barrett & Wright, Ltd.	1,280 5
Central Heating, Ltd.	1,412 0
J. Biggs	1,423 0
W. Freer	1,428 0
W. G. Cannon & Sons, Ltd.	1,483 0
The Brightside Foundry & Engineering Co., Ltd.	1,555 0
E. Deane & Beal, Ltd.	1,760 0

LOUGHBOROUGH.—Construction of pressure filters at the Blackbrook reservoir, for the T.C.:—

I. J. Abdela & Mitchell, Ltd., Manchester	£7,595
Paterson Engineering Co., Ltd., London	5,900
Candy Filter Co., Ltd., London	8,202 and 8,743
‡Bell Bros. (Manchester), Ltd., Manchester	6,396

LYDNEY.—Fifty workmen's dwellings in Spring Meadow, for the R.D.C.:—

*A. Reddings, Lydney	£23,905

LUBBESTHORPE.—Temporary Council school on the Park estate, for the Leicestershire E.C. Mr. E. G. Fowler, architect and surveyor:—

Haskard, MacGregor & Co., Leicester	£2,380 0 0
J. C. Kellett & Son, Leicester	2,089 0 0
J. Chapman & Sons, Ltd., Leicester	1,857 9 5
W. Diamond, Leicester	1,814 10 0
*Chitham & Co., Ltd., Leicester	1,810 0 0

MANCHESTER.—Offices in Jackson's-row, for the T.C. City Architect:—

*W. Rrichadson & Co., Manchester.

MANCHESTER.—Petrol station, on Oldham-road, Manchester, for Messrs. Cory Bros. & Co., Ltd., colliery proprietors, of Cardiff and Liverpool:—

*J. Catton, Manchester.

MANCHESTER. — Warehouse at Heath-street, Lower Broughton, for Mr. E. Hatton, 66, Garden-street, Lower Broughton:—

*Manchester District Building, Manchester.

MANCHESTER.—Church of Our Lady of Mersey and St. Thomas of Canterbury on a site in Gorton, for the Rev. E. K. Talbot, Mirfield, Yorks. Mr. W. H. Tapper, architect, 10, Melvia-place, N.W.:—

*Collins & Godfrey, Tewkesbury, Glos. (estimated) £20,000

MANCHESTER.—Branch bank on Fog lane, Burnage, for the District Bank. Ltd. Messrs. Francis Jones and H. A. Dalrymple, F. and A.R.I.B.A., 178 and 180, Oxford-road.:—

*G. Macfarlane & Sons, Manchester.

MANCHESTER.—Brick wall at Jewish Hospital, Cheetham, for the T.C.:—

*T. Campion & Son, Manchester.

MANCHESTER.—Sub-contractor for wrought-iron work at Park-place police and fire station, for the T.C.:—

*W. Kirkman, Manchester.

MANCHESTER.—Tenders accepted by the T.C.:—

Electric lighting (Cheetham Clinic)—
*Harrison's, Ltd., Manchester.
Heating installatio (Cheetham Clinic)—
*Fitton & Co., Ltd., Manchester.
Removal and re-erecting of wooden structure on site—(Newton Heath Technical school)—
*Gatley & Higson, Manchester.
Erection (Victoria-avenue Municipal school)—
*Tinker & Young, Ltd., Manchester.
Ventilating (Gorton Mount New school)—
*Brown & Son, Manchester.
Wrought-iron railings and gates (Chorlton Central school)—
*J. W. Daniel, Chorley.
Electric lighting (1,458, Ashton Old-road)—
*E. Sudlow & Co., Ltd., Manchester.
Alterations and additions (Embden-street and Mulberry-street schools)—
*Gatley & Higson, Manchester.

MANCHESTER.—Three houses and a shop and house with a garage, at Moston, for Mr. P. Alberti, Booth-street, Manchester. Mr. Albert Winstanley, architect, 11, Great Ducie-street:—

*E. Murphy, Manchester.

MANCHESTER.—Extensions to the Oxford Wine Bar, Oxford-road, for Messrs. Wilson's Brewery, Ltd., Monsall-road. Messrs. W. Johnson & Sons, architects, 27, Oldham-road, Miles Platting:—

*T. Campion & Son, Manchester.

MANCHESTER.—Wrought-iron railings at Jewish Hospital, Cheetham, for the T.C.:—

*J. Hulton & Sons, Radcliffe.

MARLBOROUGH.—Fourteen parlour and 14 non-parlour houses on the Lainey's Close site, for the B.C. Mr. A. P. Harcourt, Council's Architect:—

Hoskings Bros., Newbury	£16,258 0
Frank F. Jefferies, Wanborough	15,586 0
Minty & Swatton, Marlborough	15,260 16
Tydeman Bros., Swindon	14,628 0
*W. E. Piper & Sons, Marlborough	13,199 0
Architect's estimate	13,034 0

(Subject to M.H. approval.)

NEWCASTLE-UPON-TYNE.—114 brick houses on the Pendower estate, Benwell, for the C.B. Housing Architect, 18, Cloth-market:—

Neal & Shirley, Newburn	£58,008 2 9
Alexr. Anderson, Walker	56,373 0 0
W. J. Wright, Heaton	56,060 0 0
Wm. Spetch, Gosforth	55,487 12 0
G. G. Carr, Newcastle	55,390 0 0
E. R. Davison & Sons., Ltd., Blaydon	54,823 12 0
Shield Bros., Swalwell	53,735 16 6
Wm. Thompson, Newcastle	53,258 0 0
H. E. Pitt, Ltd., Sunderland	53,209 0 0
*J. S. Hetherington, Newcastle	52,879 15 0
E. Rutter & Sons, Esh	52,812 15 0
H. M. Nowell, Newcastle	52,605 19 7
J. J. Robson, Blyth	51,963 0 0
T. J. Lee & Co., Chester-le-Street	—

NEWMARKET.—Ten houses on the Burwell-road site, for the U.D.C.:—

*Edmondson & Son, Newmarket £4,765

NEWPORT (I. OF W.).—Twenty-two houses at Elm Grove estate, for the T.C.:—

*T. E. W. Phillips £9,593

NOTTINGHAM.—Construction of a new bridge over Trent-lane, between Netherfield and Nottingham, for the L.N.E.R. Co.:—

*J. Butler & Co., Ltd., Leeds.

OAKMERE.—Pumping station and piled gangway, at Oakmere, for the Winsford U.D.C. Mr. J. Birtwistle, engineer, Jesmond Dene, Cuddington, Northwich, Cheshire:—

*E. Curson, Winsford.

OSSETT.—Erection of 34 houses on the Leeds-road site, for the T.C.:—

Bricklayer—
*Gladstone Moorhouse: £2,900 for 14 houses, £1,900 for 10 houses, and £1,842 for 10 houses.
Carpenter—
*J. H. Horsnell, £1,546 for 14, £1,040 for 10, and £940 for 10.
Slater—
*A. Brown, £404 7s. for 14, £287 18s. for 10, and £288 for 10.
Plumber—
*F. A. Hardy, £834 14s. 8d. for 14, £602 10s. for 10, and £602 for 10.
Plasterer—
*W. Lockwood, £439 5s. for 14, £314 7s. 8d. for 10, and £312 3s. for 10.

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OXFORD.—Building the Rh des Memorial house at Wadham College:—

*H. Martin, Ltd., Northampton £9),000

PETERSFIELD.—Thirty houses, for the R.D.C, Mr. D. A. Thomas, surveyor:—

*Sadler & Co., Willesden—

	per pair.
Bramshott Site (6 pairs)—	
Type "A2"	£768 19 5
Type "A"	895 12 11
Type "B"	972 15 8
Liss Site (6 pairs)—	
Type "A2"	769 15 5
Type "A"	894 5 0
Type "B"	968 7 0
Eastmoon Site (3 pairs)—	
Type "A"	869 11 7

PRESTON.—Elementary schools in Alston-lane Longridge, for the Rev. Father Ignatius Harris, Preston. Messrs. J. H. & W. Mangan, architects, 18, Guildhall-street, Preston:—

*Pius, Baines & Son, Preston £2,650

ROCHDALE.—128 houses at Albert Royds-street, for the Corporation. Mr. S. H. Morgan, Borough Surveyor:—

*R. & T. Howarth, Crossfield Works, Rochdale £51,532

ST. FAITH'S.—Four houses at Wroxham, Norfolk, for the R.D.C. Messrs. A. F. Scott & Sons, FF.R.I.B.A., 24, Castle Meadow, Norwich:—

A. R. Taylor & Co.	£1,621 15
R. H. Stringer & Son	1,550 0
*S. Smith	1,450 0

(All of Wroxham.)

SHANKLIN (I. OF W.).—Alterations and additions to the Town Hall, for the U.D.C. Mr. E. C. Cooper, architect, Post Office-chambers:—

J. Rousell & Son, Ventnor, I. of W.	£2,775
J. Ball & Son, Cowes, I. of W.	2,647
*W. Brown, Sandown, I. of W.	2,325

SHEFFIELD.—For (*a*) Excavation, and (*b*) reinforced concrete work at the Tenter-street depot, for the T.C.:—

‡(*a*) Wellerman Bros., Ltd.	£15,507 10
‡(*b*) T. Wilkinson & Sons, Ltd.	18,467 0

SHEFFIELD.—Entrance doorways, &c., at the Bramall-lane garage, for the T.C.:—

‡T. Wilkinson & Sons, Ltd. £586 10

SHEFFIELD.—Extension and conversion into an open-access library of the Attercliffe branch library, for the T.C.:—

‡T. Wilkinson & Sons (Builders), Ltd. £2,190

SHEFFIELD.—Electric lighting and bell installation at Hillsborough baths, for the T.C.:—

‡Oliver Bros., Sheffield £195 19 6

SHEFFIELD.—Public conveniences at the approach to the Victoria station, for the T.C.:—

‡J. Eshelby & Son £1,124 19

SHEFFIELD.—Installation of electric lighting and fittings at Walkley and Hillsborough District Baths, Langsett-road, for the T.C. Mr. W. G. Davies, F.R.I.B.A., City Architect:—

*Oliver Bros., Sheffield.

SOUTHALL.—Erection of Southall new police station, for the Metropolitan Police. Mr. G. Mackenzie Trench, F.R.I.B.A., Police Architect and Surveyor, New Scotland-yard, S.W.1; quantities by Messrs. Thurgood, Son & Chidgey, 18, Adam-street, W.6:—

Higgs & Hill, Ltd.	£11,311
F. G. Minter, Ltd.	11,264
Lole & Co.	11,111
John Mowlem & Co., Ltd.	10,856
W. J. & A. Wright, Ltd.	10,999
H. Lacey & Sons	10,640
Patman & Fotheringham, Ltd.	10,621
T. H. Adamson & Sons	10,575
T. J. Lovell & Son	10,522
A. E. Symes	10,397
J. Dorey & Co., Ltd.	10,365
E. Potterton	10,342
Fassnidge & Son, Ltd.	10,241
F. & H. F. Higgs, Ltd.	9,998
W. J. Dickens	9,948
A. & B. Hanson, Ltd.	9,666

SOUTH SHIELDS.—Convenience at Ocean road, for the T.C.:—

*Carruthers & Salt, South Shields £812

STAFFORD.—Fifty-two houses of the non-parlour type on the Tithe Barn housing estate. Mr. W. Plant, Borough Engineer:—

28 *houses*—	
*A. Darrall, Cannock	£12,040
24 *houses*—	
*F. Espley & Sons, Stafford	10,320

STAFFORD.—Thirteen houses in North Walls, for the T.C.:—

*Espley & Sons £4,875

STAFFORD.—For (*a*) 28 houses, and (*b*) 24 houses on the Tithe Barn estate, for the T.C.:—

(*a*) ‡A. Darrall	£12,040
(*b*) ‡Espley & Sons	10,320

STALYBRIDGE.—Housing scheme at the Hague site, for the T.C.:—

*James Ridyard & Sons, Ltd., Ashton-under-Lyne.

STOCKPORT.—Certain painting and decorating work at the Town Hall, for the T.C. Mr. H. Hamer, Borough Surveyor:—

*Barber and Wrigley, Stockport £674

SUTTON COLDFIELD.—Building of sub-station at (*a*) Leslie-road, and (*b*) Belwell-lane, for the T.C.:—

*Heatley & Son: (*a*) £776 8s.; (*b*) £276 16s. 9d.

SWANSEA.—120 houses at Morriston, for the C.B, Mr. E. E. Morgan, A.R.I.B.A., Borough Architect, 3. Prospect-place :—

D. Evans & Sons, Glanamman	£75,280	0	0
D. Roberts, Swansea	67,026	0	0
James Bros., Swansea	66,888	11	0
Bennett Bros., Swansea	66,873	4	8
A. L. Mansell, Swansea	65,778	0	0
J. R. Cheley, Swansea	64,250	9	3
Morgan, Cox & Sons, Port Talbot	64,172	0	0
Lloyd & Davies, Swansea	63,990	9	10
Calway Construction Co., London	62,490	4	3
Thomas & Jenkins, Blaengarw	61,883	8	9
Samuel & Evans, Swansea	58,988	18	0
*Lawford Gower, Briton Ferry	55,414	0	0

THACKLEY.—Ten houses at Leeds-road :—
*Keighley & Croft

TORQUAY.—Heating apparatus at Westhill school, for the E.C. :—
*Jerram & Co., Derby £2,390

TORQUAY.—Rendering 24 houses at Westhill Estate, for the T.C. :—
*F. Maule £826

TOTTENHAM.—277 houses, 25 shops, and 8 garages on No. 3 estate, White Hart-lane, for the U.D.C. Mr. E. C. P. Monson, F.R.I.B.A., architect, Finsbury Pavement House, 120, Moorgate, E.C.2. Quantities by Mr. F. N. Falkner, 11, Princes-street, Cavendish-square, W.1. :—
*E. Clarke, Melton Mowbray £191,328

TREDEGAR (MON.).—Fifty houses at Ashvale, for the U.D.C. Mr. W. Lloyd Roach, architect :—
*Geo. A. Brown, Ebbw Vale, Mon £24,333 17 0

WALTON-LE-DALE.—Twenty houses on the Lostcok Hall site, for the U.D.C. :—
†B. Cank, Bamber Bridge.

WAKEFIELD.—Construction of a filter house and foundations for plant, tanks and incidental work at Jaw Hill, Kirkhamgate, near Wakefield, for the T.C. Mr. C. C. Smith, Waterworks Engineer, :—
*H. Hainsworth, Wakefield.... £5,020 5 4

WAKEFIELD.—Warehouses at the City Markets, for the T.C. City Surveyor :—
*H. Hainsworth, Wakefield.

WAKEFIELD.—Two houses on the Portobello estate, for the T.C. :—
*Elvey & Steel.

WAKEFIELD.—Construction of filter house, for the T.C. :—
*H. Hamsworth, Wakefield £5,020 5 4

WAKEFIELD.—Pipe-laying contract No. 5 of the Ryburn scheme, for the T.C. : —
*H. Arnold & Sons, Leeds £43,601 15

WEDNESDAY.—For (*a*) 40 non-parlour, and (*b*) 24 parlour-type houses on the Churchfields estate, for the T.C. :—
*(*a*) H. H. Crump, Edgbaston.
*(*b*) W. T. Emery, Walsall.

WELLOW (I. of W.).—Three houses, for the Isle of Wight R.D.C. Mr. R. Jolliffe, architect, 6, Shooters Hill, Cowes. Quantities by Reginald Jolliffe, P.A.S.I. : —
E. I. Hayles, Godshill, I.W. £1,836
*G. S. Powers, Wellow, I.W. 1,475

WEYMOUTH.—Works at Radipole Lake, for the T.C. :—
*Monnoyer British Construction Co., Ltd. £4,135

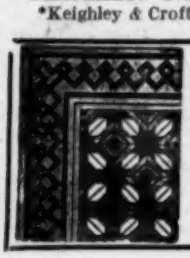
WILMSLOW.—Fifty houses, for the U.D.C. Messrs. Halliday, Paterson & Agate, architects, 14, John Dalton-street, Manchester :—
*J. Gerrard & Sons, Ltd., Manchester.

WIMBLEDON.—Sixty houses at Durnsford-road, for the T.C. :—
*Triangular Construction Co., Ltd. : £415 per house

WIMBLEDON.—Convenience at Home Park Field for the T.C. :—
‡D. R. Reid, Wimbledon £411

WIMBLEDON.—Reinforced concrete extension of Ashcombe-road bridge, for the T.C. :—
*J. Garrett & Sons, Balham £1,798

WORCESTER.—Shelter in Crippiegate Park, for the T.C. City Surveyor :—
*Haughton Bros. £198 14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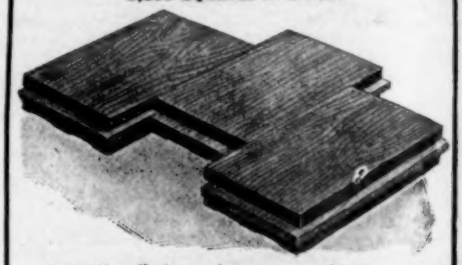
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